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THE RESPONSIBILITY OF THE GRADUATE EDUCATOR IN NEUROLOGY AND PSYCHIATRY

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• *World War II brought about acceptance of the relationship between emotional disturbances and such organic dysfunctions as peptic ulcer, migraine, hypertension, and asthma Nevertheless, the tendency to compartmentalization, splitting neurology from psychiatry, and even making distinctions between office psychiatry and the handling of acutely disturbed patients, continued to inordinate extremes The result has been an excessive devotion to particular methods of diagnosis or modes of therapy on the part of the teachers, with a commensurate unwillingness to acquire a truly broad training on the part of their students The deviations and excessive specialization of the trainees out in practice result from similar tendencies among their teachers Broadness is the essence, for the generation now being produced must not hand on a tradition of constricted interests and unbalanced perspectives to the generations that follow*

It is some 10 years since an eager group of men in the fields of neurology and psychiatry came back from military service pledged to do something about the teaching of these disciplines They met an equally interested number who had remained at home but who had come to the same conclusions Joining them were many former medical officers who had had a rich experience in the psychosomatic disorders incident to war The relationship between emotional disturbances and organic dysfunction exploded on the American scene like a bombshell Many had talked or written about this long before Pearl Harbor, and rich literature, even textbooks, had appeared in the prewar period, but universal acceptance had to await the war

Psychiatry

Men and women, recent and even older graduates, clamored for training Governmental and private agencies as well as veterans benefits helped to subsidize these programs, and many new training centers were established Older institutions were enlarged and improved to meet the need Psychiatry had received a tremendous impetus Its able leaders across the country oriented lay and professional groups The general press published numerous articles on the relationship between emotions and peptic ulcer, migraine, hypertension, and asthma Medical schools incorporated psychiatry into basic teaching Finally the discipline had broken away from its identification with the asylum or outlying sanatorium and was integrally woven into the pattern of medicine

The psychoanalysts were in the forefront of this crusade, and the principles of the Freudian school dominated the scene Even the earlier dynamicists, the followers of Adolf Meyer, gave way before those who taught the concept of unconscious motivation The Meyerians had held out until 1940, but, to quote Gitelson,[1] "We see then that the chief contribution of psychoanalysis to American psychiatry had been to complete the structure which was originally given it by psychobiology Without the concept of the unconscious and the things which follow from that concept, the sense and meaning which Adolf Meyer observed in mental illness remained without system and unity With this concept psychiatry has really become holistic"

The long struggle was over A few intransigents, here and there, held out, but today dynamic psychiatry is the orientation of most American schools, graduate and undergraduate There has been a tremendous increase in the number of psychiatric units in general hospitals and in extramural psychiatry with the development of a wide range of psychotherapeutic techniques The teaching of psychotherapy is a must in every residency curriculum Patients are no longer simply labeled and sent off for a "rest cure" to a state hospital or to a sanatorium An attempt is made to help work the problem through

Neurology

Meanwhile, what was happening to neurology? Here was a respected, even learned, discipline In its past it had numbered some of the greats of American medicine What was its state after World War II? To answer this we must examine neurology rather closely, because in many ways it was moribund This specialty

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From the Department of Neurology and Psychiatry Northwestern University Medical School
Presidential Address read before the Central Neuropsychiatric Association Colorado Springs Oct 21 1955

is a queer organism. Periodically it gets sick—seriously, even critically, ill. Consultants are called together: practicing neurologists, basic science men, neurological surgeons, psychiatrists, internists, and general medical educators. These gatherings are called symposiums, institutes, or study sections. The sick creature is examined, turned over and over, and recommendations are made to save it—by amputations, by forced feeding, or by special medicaments. Thus, for example, we have read "Divorce it from psychiatry," or "Graft it onto neurological surgery," "Let the neurologist be diagnostician only," or "Hook it up with electroencephalography." "Absorb it into internal medicine." While the would-be therapists are arguing what part to articulate or disarticulate, the sick patient is getting better and proceeds to leave the sick bed, unnoticed by the consultants, and goes about his business again.

The reason is simple. Every human being has a nervous system, and this set of organs suffers from diseases that require the ministrations of a physician who understands the mechanism. Of 1,146,662 deaths in 1930, 163,408 or 14% were listed as due to diseases of the nervous system.[3] In 1946 the percentage was the same, 14%. In 1962 it will still be 14%, although the absolute number of deaths will be greater because of the increasing population, particularly in the older age group. In short, every seventh person ultimately dies of neurological disease, while in the course of living 30% have neurological symptoms.

Why did neurology get so sick in 1946, and what must be done to keep it alive and vigorous? Neurology became ill because many of the leaders had fixed ideas that the neurologist must treat only that which shows structural change in the nervous system. Few dared depart from that dictum. Many continued a tradition by being only diagnosticians, the discipline lacked a distinctive therapeusis. The story is told of an East Coast neurologist who would sweep into a hospital on a consultation, hand over his high silk hat to his footman, examine the patient, write a sesquipedalian diagnosis, and sweep out. The consultation ended with the diagnosis. One of my own attending men at the Cook County Hospital would look up and down ward 4, fix on a patient with ulcerations of the hand, and say to me, "Ah, dot's a Morvan's disease. You have an autopsy permit on him?" Some of the former trainees from the National Hospital, Queen's Square, London, were notorious for their poor handling of patients with neuroses. Some 25 years ago a then neurologist, now exclusively a psychoanalyst, refused to see patients with functional diseases in the outpatient clinics of a medical school.

Such fixed thinking may be classified as "Maginot mentality." It seemed good, scientific, ivory-tower pure in its scholasticism, but the world of medical progress went around it, just as the German panzers circumvented Marshall Maginot's underground redoubts. The march of new knowledge threatened to engulf neurology. Fortunately, a certain basic residue could not be swept away, notably the nervous system and its diseases. No matter what happened, neurologists were needed, even if they were few and a bit tattered by wear.

This was the situation in 1946, when neurology reached its nadir, and plans were made to dismember the dying organism. Neurosurgery would take one part, psychiatry another, medicine a third, etc. The term neuropsychiatry, born in World War I, was to be dropped. The neurological part was window dressing for dignity and respectability. These men practiced psychiatry to earn a living. No "neuro" prefix was needed, there was no neurological discipline.

I have already pointed out that war with its stresses had brought psychiatry to the fore. The years of research into the dynamic factors in such diseases as peptic ulcer, ulcerative colitis, migraine, hypertension, and asthma suddenly found their expression in widely circulated medical journals and in the public press. These were important discoveries and contributions to our understanding, but deep psychotherapy, even psychoanalysis, often hit an immutable layer underneath. This was explained away as constitutional factors or heredity-determined reactions, e. g., there were "nose reactors," "gut reactors," "blood vessel reactors." In short, there were underlying factors that were possibly organically determined. Deeply depressed, mute, or regressed patients, not reachable by psychotherapy, became responsive after a few electroshock treatments, patients with severe delusions became amenable to psychotherapy after a course of therapy with insulin coma. What was happening to them? These were physiological treatments. The internists treating neurological disease encountered a new type of pathology. Neural tissue did not react like tissue elsewhere. There was no cell replacement in the central nervous system. The blood-brain barrier barred medicaments introduced through the blood stream. The physiology was new and complex. The internists would have to start their education afresh to treat neurological disease. But at the same time, their own field was flourishing. What with sulfonamides, antibiotics, corticotropin and cortisone, radioactive drugs, and long-acting insulin, they had all they could do to stay abreast. Neurology was still a stepchild.

Then the neurological surgeons moved in and still are in the field working at neurology as a second choice. Their virtue was their zeal for therapy. Something must be done for or to the patient. How was the heretofore passive neurologist to handle this? The resurgence began in 1947, chiefly in the younger group. The American Academy of Neurology was founded in 1948 by a group of well-trained, dedicated men who were interested in treatment of the neurologically ill patient. The Veterans Administration employed 200 neurologists to meet the needs of the war-injured and diseased. It established 14 approved centers affiliated with medical schools and set up specialized programs in epilepsy, aphasia, spinal cord injuries, neurological rehabilitation, and electroencephalography. The drive of the American Academy of Neurology group under A. B. Baker and his colleagues, including the then chief of neurology of the Veterans Administration, Pearce Bailey, culminated in 1950 in the formation of the National Institute of Neurological Diseases and Blindness of the United

States Public Health Service From this institute came support for intramural as well as extramural research and aid for the establishment and maintenance of graduate training programs in neurology

Other groups had caught the fever too The American Association of Medical Colleges discussed the subject in a study section in 1949,[2] and the American Neurological Association, chiefly under the leadership of Dr L J Pollock, analyzed the status of neurology in the United States in 1949[3] and held a symposium on neurological education at the annual meeting in June, 1953[4] Advances in anatomy, physiology, and particularly neurochemistry and neuropharmacology had implemented the resurgence of the field Regimens of therapeusis, rehabilitation techniques, and neurological approaches to behavior and even to memory became part of the current literature Exciting drug discoveries were made The use of mestinon in myasthenia gravis and of lysergic acid in psychotic reactions, the reexamination of the effects of mescaline, yohimbine, and the porphyrins, the role of microenzymes, and the uses of trace metals such as copper and cobalt were but a few Chlorpromazine and reserpine had proved to be a great aid in allaying anxiety and irritability The mode of action of these tranquilizers in the nervous system was to be studied We were entering an era of biological psychiatry A young, virile national society now bears that name, and many of its members are the so-called neurologists who are interested in the organic roots of behavior

Neurological Survey

What about the neurological surgeon in this own milieu? At first he was interested in neoplasms of the brain and spinal cord He had developed the important diagnostic techniques of air study, myelography, and angiography Operative skills had improved, and the danger from the procedure per se had been minimized Progress had been made in the care of cranial, spinal, and peripheral nerve injuries The improvement in the management of the paraplegic patient was one of the bright spots in American medical history, although the neurologist, the internist, the genitourinary specialist, the plastic surgeon, the orthopedist, and the physiatrist all played equally important roles The peripheral nerve injury also received better understanding with help from neurophysiological research in electromyography and electrodiagnosis The neurological surgeon was successfully attacking such problems as angiomatous malformations and aneurysms The surgical approach to the autonomic nervous system, however, still left much to be desired While the technique had improved, the reasons for the procedure and the long-term results still were indefinite The attack on pain with chordotomy, thalamotomy, and lobotomy was also a forward step, but in an area that needed further development The surgical approach to the psychoses, neuroses, or epileptic disturbances through the various lobotomies—classical, partial, and transorbital—and topectomy, amygdaloidectomy, temporal lobe amputation, or thalamotomy were being reported from various centers with enthusiasm Less mutilating techniques with use of a Horsley-Clarke machine with electrolytic, alcohol, or ultrasonic lesions were being investigated In short, the neurological surgeon has made tremendous progress these past 10 years

Auxiliary Specialties

What about the ancillary disciplines? The electroencephalographer, the electromyographer, the psychologist, and the neurological as well as psychiatric social worker have all kept pace, so that they have become part of the neuropsychiatric team

If this past decade, which has been one of tremendous progress, has revealed anything, it is that the subject of behavior cannot be studied through any one avenue A good example is the make-up of the panel in the discussion of studies on lysergic acid at the 1955 meeting of the American Psychiatric Association It contained clinical and research psychiatrists, a neurophysiologist, a psychoanalyst, and even a modern lay writer The discussion ranged from the effect of the drug on the patient s illness through the nature of the evoked spike potential at the superior colliculus, the blocking of the psychotic reaction by certain drugs, the character of the hallucinations, and the nature of visual imagery in different cultures and in different ages The last contribution, by Aldous Huxley, was no less significant than the immediately viewable details of the evoked wave on the cathode-ray oscilloscope Every training center in neurology, psychiatry, and neurological surgery has representation not only from these clinical fields but from such fields as psychology, social work, electroencephalography, electromyography, neurochemistry, and neuropharmacology This is all part of the team approach to behavior

The Problem

Most of what I have recounted you already know Why, therefore, the long introduction? I think that those of us in the field of graduate education in neurology, psychiatry, and neurological surgery find ourselves about in the same position as the engineers and designers of the modern motor car They have produced a machine that has tremendous horsepower, fast getaway, high top speed, and even excellent braking power There are tens of thousands of miles of relatively good roads Yet this wonderful mechanism kills 38,000 and maims hundreds of thousands each year Now the by-word in Detroit is safety "How can we build safety into driving?" This is my query about the training of the student in neurology, psychiatry, and neurological surgery How shall we build safety into his thinking to graduate him a broad, reflective individual? Otherwise, he may mature in a direction never intended by his educators To return to my analogy of the car, most people drive wisely, but there are enough left to produce an annual holocaust of lives and property Let us therefore examine the performance of some of our graduates

The drive for psychiatric training has been so great that centers have been swamped Some aspirants are able to secure a place, others are not. As a result, a caste system has been set up between those who have obtained psychoanalytic training and those who have not. The latter are merely psychotherapists, with low prestige rating Among the psychoanalytically trained, there is the breakdown to those who required analysis for therapeutic reasons as well as for training and those who needed it only for the latter, whatever the distinction may be To add to the confusion, there are various schools of psychoanalysis whose trainees, who theoretically should have insight, look upon each other with horror I sat in a New York psychoanalytic group one evening, adherents of the so-called orthodox school, who in referring to a certain Chicago psychoanalyst, a man of international fame, said, "You can't go by what he says He's no analyst He's a zoologist" The person referred to had committed the cardinal sin of objectively measuring the effect of emotions on visceral function Rennie[5] points out that at some centers the intricacies and minutiae of psychoanalytic concepts are the exclusive concern of the residents and all other aspects of psychiatric practice and treatment are ignored He adds that "this fascination with psychodynamics is often detrimental to the residents who wish to rush into advanced psychotherapeutic explorations long before their judgment is ready to handle the techniques, and long before they have any basic grasp of psychiatric disorders, especially those predicated upon physiological and biochemical, toxic or organic determinants"

The committee on the role of psychoanalysis in psychiatric training[6] of the 1952 conference on psychiatric education, held at Cornell University, Ithaca, N Y, agreed that "it is not necessary to be psychoanalyzed in order to develop competence as a psychiatrist, including competence in psychotherapy and psychodynamics," a statement applauded by Karl A Menninger[6] The committee deemed it highly desirable that some persons be analyzed because of the contribution psychoanalysis may make to the adjustments and skills of some individuals For those who were to practice the specialty of psychoanalytic therapy, such training was considered a necessity The committee recognized and decried the "prestige" factor that was all too operative across the country Furthermore, psychoanalytic trainees during the residency period often are not available to the hospital full time They develop a divided loyalty and "become so absorbed with what they study at the analytic institute that their interest in neighboring disciplines may suffer" This conclusion was reached by the Group for the Advancement of Psychiatry committee on medical education[7] A perusal of the new catalogs of several psychiatric training centers indicates a trend toward taking the personal psychoanalytic training out of the residency Some permit starting it at the end of the third year, others recommend it to those who desire it, but after the training period

A review of the various symposiums on psychotherapy, whether of neurotic, psychotic, psychosomatic, or so-called behavior disorders, indicates that, where the data are critically controlled, all methods obtain about the same end-results whether the technique is formal psychoanalysis, deep psychotherapy, superficial therapy, insight therapy, or supportive therapy The measure of a therapist, to quote a well-known analyst, depends first on the maturity of his personality, second on his clinical experience, and last and least on the techniques used The rigid insistence that only certain therapeutic regimens are valid reflects on the individual who has limited his therapy to one method for reasons known perhaps only to himself or to his analyst

The attitude toward the physical therapies in psychiatry suffers in two ways (1) from attack on the procedures by those who never use them and (2) from abuse by those who use the method for unsuitable conditions Thus several prominent psychoanalysts previously had described electroconvulsive therapy even in the public press as "brutal—savage—an uncivilized attack on the human being" Later this was retracted when the good results of such treatment were reported in overwhelming numbers Yet the very ease and safety of administration make electroshock therapy a misused weapon in the hands of the nondiscriminating I have seen adolescent girls, sexually promiscuous as part of a reaction to rejecting parents, treated to the point of deep confusion in order to "change their personalities" Strangely enough, insulin therapy, which is far more difficult to administer and more dangerous to the patient as regards brain damage and actual mortality, is rarely attacked Is the traditional respect for insulin, the respectable medicine of diabetes, a deterrent to criticism? Certainly insulin therapy is often misused too by those who disdain to use or who will not take the time needed for psychotherapy

What about the neurologist? He is often so "organically" fixed that he becomes the abuser of the physical therapies He will deny dynamic factors, avoid working through the background of the functional disorder He will treat the hysterical paralysis with faradic current, the anxiety state or simple depression with electroshock, completely indifferent as to why the patient developed the disorder Too often he gets away with the procedure because the condition is self-limited or the ego structure of the patient is such that it quickly becomes compensated again Or he will simply treat the patient with sedation and reassurance, offering none of the aids that will enable the patient to develop the insights necessary to prevent the next episode Patients who are traditionally trained to carry a prescription out of a doctor's office or to be given a physical treatment, or those who need the magical word of the doctor, respond to such treatment Yet is the patient being given the full benefit of our knowledge?

Let us leave the psychiatric scene What was happening to the neurological patient while the neurologist sat back all these years? The neurological surgeon had moved in, particularly the young diplomate He would love to "do" brain and spinal cord tumors, craniocerebral trauma, and he is well-qualified to do so, but he does not get the chance Too many men have been trained, or they cluster in certain areas There is not enough major surgery to go around Therefore, with the native aggressiveness that caused him to select the field of surgery, he moves into medical neurology Every convulsion or hemiparesis is a potential brain tumor, subdural hematoma, or aneurysm Every paraplegia is a potential cord tumor, every low back pain a possible "disk" Every "stroke" merits a stellate block Such a philosophy might have merit were not the follow-through an immediate neurosurgical procedure Instead of a careful history and clinical study, an air study or angiogram follows immediately, or, when the spinal cord is involved, a myelogram No half-measure seems to suffice In some recent board examinations in which I participated, in another city, I saw two patients with paraplegic states who had had myelograms that were "negative from the caudal sac to the foramen magnum " Both were done within 48 hours after the patient had been admitted The first patient gave a history of clumsy hands, fleeting paresthesias, and speech change She had nystagmus, scanning speech, and facial weakness The second had nystagmus, bitemporal pallor, and facial involvement Their presenting complaint, however, was "difficulty in walking and bladder weakness " No heed was paid to the visual difficulties Was a myelogram justified? At a recent meeting of a study group in multiple sclerosis, I learned that 40% of all new patients with paraplegic onset had already had laminectomies What were the surgical indications?

A man whose head was bandaged after ventriculography for headache still complained of the same pain The ventricular system was normal His was a tight headache, a casque neurasthenique, occurring always on Monday morning after his usual Sunday night of gambling He was an inveterate loser, thousands of dollars, and he paid off within the next day Technically, the ventriculography was perfect well-placed bur holes, good filling, no infection, but had the neurosurgeon asked the patient about the headache? The entire history on the chart was a few lines "Intractable headache, no neurological findings Impression intracranial pathology, tumor? Ventriculography " This surgeon is a diplomate of the American Board, is attending at many hospitals, and in my opinion is completely honest He would rather do 100 negative air studies than miss one brain tumor He wants to help people But he is mechanically oriented, not broadly grounded neurologically He disdains psychiatry He is a good technician, so he does not get into trouble with his numerous negative studies But is this desirable practice?

Into the area of the most common neurological disease, epilepsy, has moved the electroencephalographer We are a nation of gadgeteers, we all love mechanisms, and to me nothing is more fascinating than to watch the needles of an ink-writer beat to the drive of the electrical activity of the cortex I even enjoy the "sing" of the needles as they respond to muscle potentials as the patient swallows I must also admit a bit of awe, for this is a privileged activity to watch It is the very life process Were the patient to die there and then, the needles would become strangely still, there would be no beat, only a straight line to indicate that life, as recorded in the brain, has ceased

But we must not let emotions, even admiration, carry us away Is electroencephalography useful in epilepsy or in cerebral localization? The answer is an unequivocal "yes," and I personally utilize the procedure every day Is it a *sine qua non* in epilepsy? No! In localization? No! A study in 1954 on the reliability of electroencephalographic judgments, conducted by the human resources research office of Stanford University, revealed startling facts [8] Among the five highly qualified examiners, the percentage of complete agreement on the presence of pathology was only 40, for localization, 30, for combined localization and pathology, 10 How, therefore, can the electroencephalographer working with the record only merely a tracing of multiple channels, render clinical judgments, designate pathology, and outline drug or surgical treatment—in short, practice neurology? Yet this is done every day across the country

Let me recount a recent report concerning an 11-year-old boy who had been considered noneducable He presented the classic picture of the child who had received a brain injury at birth, with the usual subsequent hyperactivity and aggressiveness He had a defect in the audioperceptive sphere, although visuomotor performance was high Gross neurological defects were absent. Lately he had calmed down, and the question of special schooling was now raised Among the battery of tests, an electroencephalogram had been run Let me quote the report

> Preliminary psychological studies on this boy indicate that brain injury may be the cause of his learning difficulties at the present time An electroencephalogram done today corroborated these findings The tracing showed high voltage 9 to 10 per second basic activity in all areas with spike activity in the right occipital and left temporal areas more marked during sleep Spiking indicated brain irritation which could well account for this child s inability to learn reading The prognosis in such a case is good We have followed the course of many cases showing this pattern and have found that the spike activity disappears during the teen years and frequently the child is able to learn normally The dispersal of the spike activity in the occipital and temporal areas in this brain at the present time suggests healing is already in progress so we might expect complete recovery in the next few years
>
> In addition to his difficulty with reading he has a slight aphasia and some distractability and occasionally short periods of hyperactivity These symptoms are quite commonly associated with the type of spike activity we found in the electroencephalogram They tend to disappear as the spiking disappears in the record They are often helped by Sodium Dilantin so we started him on 0 1 grams twice daily
>
> We know from statistics in many hundreds of similar cases this disorder subsides spontaneously and is also helped by medicine In addition, he needs special schooling He should have the companionship of children his own age with special attention to speech and reading He has had very little formal education as he has been in ungraded classes for several years The child s I Q is estimated to be average or above average The ideal situation for him would be companionship with children his own age with special tutoring in all the subjects in which he has not received instruction in the past.

This was all reported on the basis of an electroencephalographic tracing The child was not examined otherwise The parents, happy at the specific diagnosis and recommendations, considered this one tracing more important than the many hours spent by the neurologist, the psychiatrist, and the psychologist working with the details of the organic defect as well as the functional overlay To the parents the solution lay in the precious bottle of red-banded capsules that the father clutched as though he had the Hope diamond in his hand

Recently I walked into a hospital ward room where I had been asked to examine a patient I chanced upon a woman having a Jacksonian fit on the left side of her face and in her left shoulder and arm She was the patient I was to see She also had a suggestion of lifting of the right optic disk. A glance at her chart was startling There was a letter from her doctor in another state appending a series of electroencephalographic reports taken over three years Each ended with "Diagnosis—brain tumor, glioma—grade 3—inoperable Advise x-ray therapy " All this was on the electroencephalogram report, not in the surgeon's letter Our angiogram subsequently outlined what appeared to be a small tumor, and at operation a golf-ball sized meningioma was easily lifted out of the Sylvian fissure Just how a grade 3 glioma, whatever was implied by this, is recognized on electroencephalogram is beyond me, but she had had no care for three years on the basis of this conclusion

In some parts of this country, neurology, particularly localization and identification of a herniated intervertebral disk, is practiced with an electromyograph and an electrodiagnostic box Such apparatus is valid for diagnostic aid in certain disturbances, but to carry the use beyond is to change the machine into an electronic Abrams neurocalometer

The recent efforts of the clinical psychologists to obtain state licensure to practice psychotherapy points up a situation fraught with danger Therapists are needed everywhere, particularly in the state hospitals and community clinics Private practice is financially rewarding, but there are not enough psychiatrists to cover the need In many places psychologists have set up offices for such practice, and they wish licensure But are they equipped to carry the onus of such care? Will they recognize the organic brain defect or metabolic disorder producing the symptom? What is their legal status if their patient commits murder or is a suicide? May they recommend, not prescribe, a drug such as chlorpromazine, which a drug clerk may sell without a prescription? We train these people in our centers to do therapy How can we keep them within legal and realistic bounds? Many consider themselves equal to those psychiatrists who have rejected all organic factors in illness and who "avoid" their medical school experience In short, when the psychiatrists pull out of the framework of medicine, the psychologists draw up and demand equal status in treatment of the emotionally ill It has required most intensive work by Dr Paul Huston and his American Psychiatric Association committee on relation with clinical psychology to achieve a five-year moratorium on this drive for licensure Yet have we not done this to ourselves?

The psychiatric social worker poses a similar problem, although the request for licensure has not yet been officially raised The group for private practice already is formulated among the social workers and has resourceful, energetic leaders In some large metropolitan areas social workers are already in the private practice of psychotherapy Are they equipped? Are they responsible? The same answers hold for them as for the clinical psychologists Yet the curriculum of the better schools of social work calls for courses in psychobiology, psychodynamics, psychotherapy These are taught by good psychoanalysts A personal analysis is considered desirable, and many social workers have had this They are sincere, dedicated, intelligent people who wish to exercise their professional skills Shall they practice unsupervised private therapy? I know many psychoanalysts who prefer to refer a patient to a well-trained psychiatric social worker than to a nonanalyzed, however dynamically oriented, psychiatrist This problem remains unresolved

Suggested Solution

Why do we have these fringe problems in our three fields, psychiatry, neurology, and neurological surgery? Why are the fringes so large and dangerous? It is because all these fields have ballooned up so rapidly, because there is so much overlap, and because we have not had enough chance to determine how each discipline shall be handled This will require many more years of maturation Yet certain wisdoms have come during these 10 years, and the publications of the study groups such as the Group for the Advancement of Psychiatry and the Ithaca conference have recorded them for psychiatry The symposiums on neurological education similarly have reassessed the requirements of a neurologist who, to quote H G Wolff,[8] "*must come out sound, sensible, comfortable and reasonable toward problems of disease of the nervous system Nor will he shrink from dealing with life problems or disturbed personalities*"

The time to indoctrinate the future specialists is during the residency period The trend in training is toward university-centered programs, with rotation through a general hospital, where acute and episodic disturbances may be seen, through a chronic hospital, where the long-term course of an illness may be watched and rehabilitation procedures instituted, and through outpatient services, where the ambulatory patient may be studied and treated The disturbances attendant to grief, personal loss, injury, surgery, infections, and metabolic disease all can thus be observed and the problems worked through To appreciate the functional, the neurological trainee spends six months to one year on psychiatry, inpatient and outpatient, while the psychiatric trainee spends six months on neurology and a variable period on medical, surgical, pediatric, and other selected services to see the effect of organic illness on the total person Basic science courses are given with resident participation, as opposed to lectures and demonstrations to a large group or cram sessions to prepare for the board The neurological surgeon spends one year on the medical neurology services, where he learns to appreciate the functional as well as the organic syndrome The Board of Neurological Surgery has just added another year, a fifth, to the training to improve the program All of these disciplines are taught in the framework of medicine, of medical schools, and of laboratories

It becomes the duty of those of us interested in graduate education to be familiar with what is going on about us, to be aware of the whys and wherefores of the changes The deviations in our trainees after they are out in practice stem in part from their experience as residents Whether we like it or not, they are aping us Each of our set-ups may be neat, educationally tidy, our students devoted to us, hanging on our every word and acting like religious zealots We must avoid these provincialisms no matter what our personal prejudices The years of graduate training must be invested in a solid basis of experience in which all ideologies of proved merit are presented fairly The resident must be permitted a personal tour in each area to give him perspective At the end of his residency he will be in a better position to select his personal direction I have had neurological residents ask to be excused from the inpatient psychiatric service and the outpatient psychiatric clinic because "I m not interested in these patients, I m going to be a neurologist" I have watched a psychiatric resident avoid the ward for acutely disturbed patients because "I m aiming only toward office psychoanalysis" He also demurred at dissecting a brain because I can cram up enough the week before to pass the board" Can the neurologist treat epilepsy by pills plus the electroencephalogram, and ignore the patient s emotional problems attendant to the disease, the anxieties and attitudes of the family, the doubts of the employer? Can the psychiatrist treat the patient with the peptic ulcer without knowing the medical course of the disturbance? How will he separate the pain evoked by chronic repressed rage from that produced by a slow, forme fruste penetration? How can a neurological surgeon learn the symptoms and mechanisms of a tension headache in an ambitious, compulsive engineer-designer who was always facing deadlines? Only recently I stopped a proposed air study in this very instance

Each of our trainees must be educated broadly during the residency training period The teacher must keep his student's mind open and flexible, permitting entrance of other ideologies, avoiding dogma He must guide his protégé too, encouraging his reading, giving him personal supervision and discussion time to help him shake down and crystallize his knowledge into working form, so that his mind will not be a storehouse of conflicting ideas But broadness is the essence From such a groundwork, plus his reading plus his personal experience will come a maturity a basis for his future This is our responsibility as educators we must graduate a generation of well-equipped young people who not only are dedicated to their work but will prepare the scene for those who in turn will follow

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MANAGEMENT OF THE "FROZEN" SHOULDER

G Edmund Haggart, M D , Robert J Dignam, M D
and
Thomas S Sullivan, M D , Boston

• *Immobility of the articulatio humeri sets in most frequently in middle life It is usually ascribed to some minor trauma, but in reality the cause and exact nature of the derangement are both in doubt*

The treatment recommended here consists of hospitalization, closely supervised therapeutic exercise, and manipulation of the joint at several sessions with the patient under general anesthesia Complete mobilization must not be expected at the first session but is achieved in stages The exercise program continues during the intervals of three to five days between manipulations

Ninety six patients who had been treated for "frozen" shoulder in this way responded later to a detailed questionnaire and also returned for a physical examination The results of the treatment were thus evaluated by both subjective and objective criteria Open operation alone can yield the explanation of this condition, but the closed method here advocated gave results classified as good to excellent by objective as well as subjective criteria, and it was not followed by complications in any case

"Frozen" shoulder is a term taken from the classic textbook by Codman,[1] wherein he stated this type of shoulder disability is 'difficult to define, difficult to treat, and difficult to explain from the point of view of pathology" From our review of the literature and experience with patients with this condition, we believe that, as of now, this term best describes the overall picture It is to be noted that these patients herein reported on, who were hospitalized, represent only a part of the total number seen, as patients frequently regain full range of motion as the result of a conservative active exercise program

Etiology

The etiology of frozen shoulder still is not clear The condition occurs most frequently in middle life, more often in women than in men, and is consistently observed subsequent to prolonged dependency of the upper extremity, whatever the cause It is well established that arthritis and other metabolic diseases play no significant role, while major trauma was not a factor in any of our cases As stressed by McLaughlin and Asherman,[2] an injury to or partial rupture of the musculotendinous cuff, while painful, is never accompanied by limitation of passive motion The reverse is also true, namely, a stiff or so-called frozen shoulder is not associated with a tear of the rotator cuff The majority of the patients attribute the onset of the con-

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Read before the Ninth Clinical Meeting of the American Medical Association Boston Nov 29 1955 dition to a minor contusion or sprain, but frequently no specific incident is reported to cause the condition In those patients in whom the shoulder motion became limited subsequent to a coronary thrombosis, there was no significant occurrence except chest pain, with resultant fear of moving the arm

With the onset of pain and discomfort, the patient limits active use of the arm as far as motion of the shoulder joint is concerned Gradually the symptoms subside, and subsequently a certain degree of motion returns, to be followed by definite limitation of abduction and external rotation, which limitation persists Then an effort to increase the range of motion is quite painful In this connection, we do not subscribe to the term periarthritic personality, since it is our belief that this type of personality, as described in the literature, actually is often the result of the painful, stiff shoulder rather than its cause

Pathology

We have never directly visualized the pathological changes in a frozen shoulder, as all of our patients have been treated by closed manipulation, hence, a detailed study of the literature was made We are indebted to McLaughlin[3] for his observations on 24 shoulders exposed at operation just prior to manipulation He reports that as the arm was manipulated the intra-articular portion of the biceps tendon ruptured in almost every instance, while the subscapularis tendon repeatedly was ruptured to permit external rotation The synovial lining of the capsule was not found to be actually adherent to the cartilage of the humeral head but was wrapped around it tightly enough to produce an appearance of actual adherence, and a peeling-off effect was observed as the contracture was released He also found the capsular fold and pouches obliterated by adherence of the synovial surfaces In contradistinction to the reports by Lippmann,[4] McLaughlin also states that bicipital tenosynovitis confirmed by microscopic study was not encountered as an isolated lesion but only as an extension of the inflammatory process, originating in the shoulder joint Furthermore, neither inflammation nor adhesions were visualized in the subacromial bursa of the stiff shoulder

Neviaser[5] surgically explored 10 shoulder joints and manipulated them under direct vision He described the capsule adherent to the humeral head and adhesions discernible at the reflected fold of the capsule distal to the anatomic neck On manipulation there was an avascular separation of the capsule from the head that was similar to adhesive plaster pulled from the skin, as well as tearing of the capsule at the reflected fold Such observations are consistent with Quigley's concept of "checkrein" shoulder[6] While Neviaser reported little or no hemorrhage subsequent to the manipulation, McLaughlin observed a minimal degree of hemorrhage occurring through all the anatomic structures stretched by the manipulation Other reports in the literature implicate the subacromial bursa as the primary site of the pathology Bosworth[7] analyzed 28 consecutive cases of incapacitating shoulder lesions and found the bursa obliterated by dense adhesions that were removed by sharp dissection and the arm then manipulated In other words, he believed an obliterating subacromial bursitis was the cause of frozen shoulder

Fowler,[8] in a study made in the dissecting room of 340 shoulders, found one complete rupture of the supraspinatus tendon to every 28 shoulders, an incidence of 3%, while there was an incomplete tear of this tendon in one in every 6 shoulders, an incidence of 16% He therefore considered this tendon pathology as the primary cause of most stiff, painful shoulders Simmonds[9] attributed the pathogenesis of frozen shoulder to degeneration of the supraspinatus tendon with focal necrosis Inflammation results that is similar to that of a reaction to a foreign body, the inflammation is painful and spreads to involve the bursa, which becomes thick and edematous Simmonds does not indicate local presence of adhesions but states that the capsule and the rotator cuff become thickened and inelastic DePalma and others[10] dissected 108 shoulder joints in patients in the age group from 18 to 81 years and noted no significant changes relative to the biceps tendon until the fifth decade, when there was thickening, widening, and shredding, which became more pronounced in each subsequent age group These lesions occurred concurrently with the appearance of degenerative lesions in the musculotendinous cuff Significant changes in the latter structure first appeared in the fifth decade DePalma concludes that these were probably degenerative lesions due to wear and tear

On the basis of these reports, the pathology in a frozen shoulder probably occurs in the capsule, biceps tendon, bursa, peritendinous, and pericapsular structures With treatment by closed manipulation, an exact knowledge of the pathological changes is not possible So far, no operations have been carried out, but we wish to emphasize that, if undue resistance to manipulative maneuvers were encountered, an open procedure would be indicated for ablation by sharp dissection of the pathology in any or all of the above areas in order to increase the range of motion of the shoulder joint

Historical Review

Codman,[11] in a paper on stiff and painful shoulders published in 1906, referred to Putnam,[12] who, in 1882, advocated "an examination under ether with a view to rupture of adhesions as the proper treatment for cases of stiff shoulder " We are indebted to Lapidus[13] for the earliest reference in the literature to shoulder manipulation, namely, a paper by Duplay, who, in 1872, first described periarthritis of the shoulder at postmortem examination in one of his patients, whose shoulder had been manipulated because it was stiff He was the first to differentiate this condition from true arthritis of the glenohumeral joint For treatment, he advised manipulation with the patient under general anesthesia, with use of chloroform A comprehensive review and observations on the function of the shoulder joint were presented by Inman and others[14]

Treatment

In our opinion, treatment is mandatory for patients with frozen shoulder, otherwise disability may persist for months or years, and in some instances may be permanent In our hands, the treatment is basically that of manipulation of the shoulder joint in progressive stages with the patient under anesthesia, this is done after an intensive exercise program While manipulation with the patient under anesthesia has been reported in the literature as dangerous, when it has been carried out in the manner herein described it has proved an effective therapy If unusual resistance to manipulation is encountered, we would advise an open operation Such a procedure was not done in this group of patients

The treatment may be summarized as follows The patient is hospitalized and the extremity suspended by the forearm from an overhead bed frame Then, under the direction of a skilled physical therapist, an intensive exercise regimen is instituted Since the gravity factor is eliminated, these patients, without exception, relatively rapidly exhibit a true increase in the range of shoulder joint motion, which in selected cases can be further supplemented by additional exercises with the patient in the standing position, with the trunk flexed and the arm hanging free Once the maximal amount of improvement under these conditions is obtained and, after intravenous administration of thiopental (Pentothal) anesthesia, the arm is gently manipulated, the patient lying supine on the table As previously described,[15] the patient s extremity is well supported by the operator s forearm and hand, the latter grasping the patient's humerus just below the surgical neck, while motion of the scapula is prevented by the operator's other hand This maneuver prevents fracture of the humerus The patient s arm is gradually abducted and externally rotated through a range of motion commensurate with the degree of resistance encountered

We believe it is important that this procedure be done in stages If an attempt is made at the first manipulation to obtain a complete range of shoulder joint motion, in many instances the patient may experience such pain when he regains consciousness that he will not be able to continue with the exercise program and the condition will revert to its original status or the patient will exhibit even more disability In the average case the arm is again manipulated three to five days later Subsequent to each manipulation, the patient is again put back on an intensive exercise regimen, first in bed with the arm suspended and, later, when ambulatory Plaster casts or arm abduction splints are not utilized Local injections of procaine and/or hydrocortisone (Hydrocortone) may be employed

To regain complete shoulder motion it is also necessary to secure normal external rotation and internal rotation because, as shown by McGregor,[16] full abduction is impossible without full external rotation, and likewise complete flexion is not feasible without full internal rotation We make a definite effort to increase external rotation during the manipulation, but, if there is pronounced resistance to internal rotation, this maneuver is not forced, as in our experience the average patient will progressively increase internal rotation subsequent to a greater range of abduction and external rotation The average length of hospital stay is 10 days In occasional instances the patient later returns for 48 hours to have the manipulation repeated Thereafter the majority of these patients, initially followed at frequent intervals and later at longer periods, have regained normal motion of the shoulder joint and are free from pain

Our experience with the administration of corticotropin (ACTH) or cortisone, as suggested by Quigley,[15] is limited because our experience without such medication has been so satisfactory It is important to emphasize that, before any treatment is instituted, the general program is always outlined to the patient and the necessity for his continued and active cooperation is explained and stressed Suprascapular nerve block, as reported by Milowsky and Rovenstine,[17] has not been of value in our experience with frozen shoulders, probably because the shoulder joint is supplied by five other nerves, as demonstrated in an anatomic study by Gardner [18]

End-Results

It is our belief that accurate evaluation of end-results is best accomplished by (1) observation over a long period, (2) physical examination of the patient's shoulder, and (3) reporting both the patient's impression—subjective result—and the opinion of the examining physician—objective result Roentgenograms were obtained in many patients but, except in an occasional instance, did not contribute to the analysis

Results in Ninety-Seven Patients with Frozen" Shoulder Who Completed Questionnaire and Reported for Examination

Subjective	No of Patients		Objective No of Patients	
Excellent	61	82%	75	95%
Good	19		17	
Fair	9		2	
Poor	8		3	
Total	97		97	

We attempted to contact a total of 230 patients who had been hospitalized for treatment Each patient was sent a detailed questionnaire to complete and was then requested to visit the clinic for an examination A total of 153 replies was received, and 97 of the 153 patients came to the clinic for examination Of 56 patients who completed the form but were not examined, the majority were unable to report because of physical disability not related to the shoulder The others were lost to follow-up because of change of address, and a surprising number had died This paper is, therefore, based on the results of treatment of 97 patients who were hospitalized because of a frozen shoulder and who, having completed the questionnaire, reported for an interview and physical examination (see table) The subjective results in the 56 patients hospitalized for treatment who answered the detailed questionnaire but did not report for examination were as follows excellent 37, good 16, and poor 3, therefore, 95% reported excellent or good results In the entire group of 153 patients, the longest period of observation was nine years, and the shortest was four years, with an average follow-up of six years

The classifications were made as follows excellent results—no shoulder symptoms and normal range of shoulder motion, good results—normal shoulder motion and full activities but some occasional discomfort, fair results—recurrent mild shoulder discomfort but able to work and with normal motion at the shoulder joint, and poor results—limitation of shoulder motion and/or constant pain, not able to resume usual activities

Comment

The difference in objective and subjective results in the patients examined needs explanation Even though a patient with a severely frozen shoulder and marked loss of function gains full motion after manipulation, as long as there is some residual aching he will subjectively classify the end-result as fair or in some instances good On the contrary, objective physical examination of these same patients, who have a normal range of shoulder joint motion and what appears to be minimal to no discomfort, results in an increase of the excellent and good results

It is an interesting observation that, after these patients had regained a full range of motion, an average of three to four months after manipulation, there were no recurrences of frozen shoulder, even though most of them discontinued their exercises at the end of that period It is also to be noted that neither at the time of the patients' hospital discharge, when they were examined and the findings recorded, nor at the follow-up examination were we clinically able to demonstrate evidence of pathology or signs of tenderness along the bicipital tendon and bicipital groove With excellent and good results in 82% subjectively and 95% objectively, we believe that closed manipulation of the frozen shoulder is well worthwhile and an effective form of treatment There were no complications such as fracture of the humerus in this series

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IDENTIFICATION OF MALIGNANT POTENTIALITIES OF MELANOCYTIC (PIGMENTED) NEVUS

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- *An attempt is made to state the clinical features by which the physician can decide whether a common pigmented mole, appropriately designated as a melanocytic nevus, should be removed*

At the junction or interface between epidermis and dermis lie the melanocytes whose multiplication and extrusion into the dermis is called junctional activity Junctional activity is considered to be a necessary prerequisite for the development of melanoma when it arises from a preexisting nevus Polypoid, dome-shaped, sessile, and pedunculated lesions are usually free from this histological feature, but flat lesions, slightly elevated lesions, elevated lesions with pigmented halos, and verruciform lesions are likely to have junctional activity These latter types should, if treated at all, be totally excised and examined histologically

Physicians are questioned almost daily by their patients on the advisability of the removal of pigmented nevi as prophylaxis against malignancy This paper is an attempt to point out certain clinical features as a guide to the proper selection of lesions that may degenerate into malignant melanomas and to the separation of these from the many others commonly found on the patient's skin that do not possess this potentiality The clinical diagnosis of pigmented nevi of the skin has always been a perplexing problem even for experts [1] This is so because so many lesions not of nevic origin may be pigmented and, therefore, clinically mimic the pigmented nevus Furthermore, pigmented nevus is merely a descriptive generic term covering a host of nevic lesions of diverse tissue origin It is obvious, therefore, that the practitioner faced with the problem of the diagnosis of a cutaneous pigmented lesion must first determine that the lesion is of nevic origin and then decide just what type of pigmented nevus it is

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Types of Pigmented Nevi

All pigmented nevi may be divided into three groups (table 1) (1) those lesions in which the actual pigment-forming cell (the melanocyte) constitutes the essential part of the lesion, (2) those lesions in which the melanocyte is present and physiologically active but only as an incidental part of another type of cellular organization of the nevus, and (3) mixed lesions, in which the essential structural elements are melanocytes as well as other tissue-forming cells (table 1) Only those nevi whose basic structural elements are melanocytes (groups 1 and 3) are capable of giving rise to malignant melanomas [2]

Because the pigment-forming cell is called the melanocyte, I propose, for purposes of classification, that a lesion belonging to group 1 be designated a melanocytic nevus,[3] just as one would call a nevus in which the basic structural elements were blood vessels a vascular nevus The second group of nevi obviously includes many diverse pathological lesions representing hamartomatous developments in various cutaneous structures, but in each of which pigment formation is merely a secondary or associated feature A partial list of these lesions includes seborrheic verruca, epithelial nevus, senile lentigo, pigmented papilloma, ephelis, and pigmented skin tag In this group might also be included trichoepithelioma, adenoma sebaceum, and multiple benign cystic epithelioma, when these lesions show pigment formation The third group comprises almost any composite of nevoid melanocytic aggregations with various nevoid developments of other tissue components of the skin Perhaps the most common of these is the hairy pigmented nevus, in which both melanocytic and follicular hair-forming structures form the fundamental parts of the lesion

TABLE 1 —*Pigmented Lesions of the Skin**

Nevoid			
Melanocytic	**Nonmelanocytic**	**Mixed**	**Non Nevoid**
Junction nevus	Seborrheic verruca	Hairy pigmented nevus (melanocytic and follicular elements)	Pigmented epithelioma
Compound nevus	Epithelial nevus	Vascular pigmented nevus (melanocytic and vascular elements)	Sclerosing hemangioma
Juvenile melanoma	Pigmented skin tag	Verruciform nevus (melanocytic and epithelial elements)	Senile keratosis
Intradermal nevus	Trichoepithelioma		Multiple hemorrhagic hemangioma of Kaposi
Lentigo	Vascular nevus		Glomangioma
Mongolian spot	Ephelis (freckle)		Supernumerary nipple

* These lists are not complete but give important examples

Non-Nevic Pigmented Lesions

As indicated above, the diagnosis of the melanocytic nevus is often complicated by the fact that there are other lesions of non-nevic origin that also have pigment Becker [4] and Swerdlow [5] have listed many of these lesions, the most important of which are, in my experience, pigmented basal cell carcinoma, pigmented neurofibroma, hemangioma, histiocytoma cutis, sclerosing hemangioma, chronic perifolliculitis senile keratosis, Bowen's keratosis, scar, foreign-body granuloma, pigmented granular cell myoblastoma, verruca vulgaris, epidermal cyst, subepidermal hemorrhage, xanthoma, multiple hemorrhagic hemangioma of Kaposi, glomangioma, and supernumerary nipple In addition, Becker [4] and Swerdlow [5] have emphasized the difficulty, at times, of differentiating between benign melanocytic nevus and malignant melanoma

To confound the clinician further, it is necessary to point out that the melanocytic nevus itself may lack pigment when its constituent cells are physiologically inactive as far as melanogenesis is concerned It is therefore necessary that this structure be differentiated from numerous nonpigmented lesions This paper deals primarily with the different clinical features of the melanocytic nevus It is incumbent on the clinician, for the purposes of differential diagnosis to be familiar with the clinical characteristics of those lesions mentioned above, with which the melanocytic nevus is so frequently confused

Development of Melanocytic Nevi

The melanocyte originates in the primitive neural crest in the embryo During early embryonic life [6] it wanders out into those tissues that, in the mature animal, have pigment (melanin) forming properties (table 2) Special nests or collections of these cells at the epidermodermal junction of the skin eventually become activated (probably by autonomic, emotional and endocrine [7] factors), usually in postuterine life, to form the common melanocytic nevus, while foci of these cells in the corium similarly develop into pigmented melanocytic nevi called the Mongolian spot and the blue nevus of Jadassohn Melanomas may arise in any tissue where the melanocyte is present, but as far as the skin is concerned, they seem with rare exceptions to originate either in melanocytic nevi when these have junctional activity or as primary malignant lesions in flat pigmented spots called malignant lentigos This paper deals exclusively with the problem of melanocytic nevi on the skin and will not consider pigmented lesions on the mucous membranes or other tissues

It is now well known that melanocytic nevi are exceedingly rare at birth but that their numbers increase rather rapidly until puberty Although new melanocytic nevi may continue to appear from time to time after puberty, they do so at a decreasing rate each decade [8] Not infrequently, these lesions arise in crops or sprays, indicating the simultaneous stimulation of many of these foci at a critical stage in the individual's life When the lesions first develop, they are pigmented macular spots, but after months or years they become elevated and acquire a variety of surface characteristics The macular lesions are usually of two histological types (1) those lesions in which histologically the skin appears normal except for increased pigmentation and increased number of "clear cells" (melanocytes) at the epidermodermal junction, often with slight hypertrophy of the epithelial rete, this is the lentigo (inactive junction nevus), and it may have potentialities for acquiring junctional activity, and (2) those lesions that histologically show clumps or aggregations of nevus cells apparently dropping off or being extruded from the epidermis into the underlying corium at the epidermodermal junction This process is called junctional activity, and the lesion in which it is found is called a junction nevus, or, to contrast it with the lentigo, an active junction nevus

Older, more mature, or more fully evolved lesions are apt to be thickened and slightly elevated, and the histological picture changes so that many cords or bands of nevus cells are aggregated in the corium, with only an incomplete connection with the epidermodermal junction This lesion is called the compound nevus With further aging, the lesion usually becomes still more elevated When examined histologically, its mass is found to be composed largely of nevus cells in clusters or bands within the corium, having no detectable connection whatsoever with the epidermodermal junction This is the so-called intradermal nevus, and it is presumed that this is the fully mature nevus, and it is presumed that this is the fully mature lesion In middle-aged and older individuals, the melanocytic mass in the corium tends to be reduced and to be replaced by a fibrillary substance, while the cells at times assume a spindle shape, suggesting a neurofibroma or a schwannoma [9] At times a lesion evolves rapidly in childhood, with histological cellular features of hyperplasia and anaplasia, and may be mistaken for a malignant melanoma In actuality this is a rapidly growing compound nevus, designated as juvenile melanoma In spite of its name, this is nearly always a benign lesion [2]

TABLE 2 —*Stages in the Evolution of the Melanocyte, a Labile and Unstable Cell Type, in Man*

- In Utero
  - Wanders from primitive neural fold to
    - Epidermodermal junction
    - Uveal tract
    - Occasional foci in corium
    - Rarely in pia mater about the medulla
    - Mucosal surfaces
- Postuterine Life
  - At epidermodermal junction melanocyte forms
    - Normal pigment in skin
    - Latent foci that later may develop into
      - Melanocytic nevus (common pigmented nevus)
      - Melanoma
  - Uveal tract melanocyte produces
    - Normal pigment
    - Melanoma
  - Occasional foci in corium form
    - Mongolian spot
    - Blue nevus of Jadassohn
    - Melanoma (rarely)
  - Rare foci in pia matter produce
    - Pigmented meninges
  - Activation of mucosal foci produce
    - Occasional pigmentation
    - Occasional melanoma

Junctional Activity

Junctional activity is found in the junction nevus, the compound nevus, the juvenile melanoma, and those intradermal nevi with remnants of junctional activity Absence of demonstrable junctional activity is a feature of the intradermal nevus, the lentigo, and the blue nevus Since junctional activity is the generally accepted histological prerequisite for malignant potentiality, the problem for the physician is to translate these histological criteria into clinical ones that will enable him to predict the histological findings from the clinical appearance of the lesions Numerous papers on the histology of these lesions are available, but their clinical appearance seems very often to have been treated rather obscurely It would seem that these studies were drawn primarily from histological material with a frequently inadequate later attempt at clinical recall

In an earlier study [3] I adopted the opposite approach, Over 200 melanocytic nevi were carefully examined clinically, and then histological features were determined This was followed by a classification of the clinical features as related to the histological details It seemed that one could, with a reasonable degree of accuracy, predict the histological nature of these lesions from certain clinical characteristics The more important of these features are shown in table 3

The typical junction nevus usually appears early in life and frequently develops in crops The lesion is flat or only very slightly elevated It often has a rather angular, irregular, or fuzzy border, and the pigment distribution is at times uneven, so that the lesion appears speckled or mottled It later evolves into a compound and eventually into an intradermal type This evolution progresses most rapidly in lesions on the head and neck, while the rate of maturity is lowest in those on the palms, soles, and genitalia, at which sites the lesions may persist as junction types throughout life Fortunately, the junction nevus has little or no malignant potentiality until puberty, and even after puberty only a few junction nevi eventually become malignant

TABLE 3 —*Clinical Features of Melanocytic Nevi*

Junction Nevus	Compound Nevus
Early life frequently in crops Flat or only slightly elevated Border fuzzy pigment speckled Evolves into compound type Apt to persist on the palms soles and genitals as junction type throughout life Has little or no malignant potentiality until puberty Only a very few junction nevi persisting after puberty become malignant	Many years duration usually prepuberty or older Almost invariably elevated often with macular ring or halo about periphery Clinical variants Smooth Verruciform Keratotic
Juvenile Melanoma	**Intradermal Nevus**
Usually before puberty Rapid growth Usually elevated Usually not much pigment often reddish or violescent in color Clinical variants Smooth Verruciform Keratotic	Develops from preexisting compound nevus Many years duration usually late puberty or older Almost invariably elevated No macular ring or halo Clinical variants Verruciform Keratotic Smooth elevated with or without hair Flabby fibrotic sessile or pedunculated

The compound nevus is apt to be of several months' or many years' duration and is usually found in the preadolescent years or during early maturity It is almost invariably elevated and is often surrounded by a pigmented macular ring or halo There may be surface clinical variations of this lesion, it may be smooth, verruciform, or occasionally capped by a keratotic surface The juvenile melanoma almost always appears before puberty It grows rapidly, so that the changes become obvious within weeks or at most within months It is almost universally elevated and usually does not contain much pigment It often has an inflammatory reddish or violescent color The surface of the lesion may be smooth, verruciform, or keratotic The intradermal nevus develops from a preexisting compound or juvenile melanoma. It is usually of many years duration and most frequently appears in late puberty or adulthood It is almost invariably elevated and is seldom surrounded by a macular ring or halo Numerous clinical varieties include keratotic lesions, verruciform lesions, smooth dome-shaped lesions, and flabby fibrotic, sessile, or pedunculated nodules or tags

It has been useful for diagnosis to classify melanocytic nevi by clinical types into the following categories flat lesions, slightly elevated lesions, elevated lesions with halos, verruciform lesions polypoid lesions, sessile lesions, pedunculated lesions, and dome-shaped lesions Most flat lesions are histologically either lentigos (inactive junction nevi) or active junction nevi As one would expect, the active junction nevus is found in the younger patient, whereas the lentigo is found more frequently in the older patient. Macular lesions are seen less frequently on the head and neck because the melanocytic nevus matures most rapidly in this region, while they are relatively more common on the distal portions of the extremities because the rate of maturity is slowest there Slightly elevated nevi and elevated nevi with halos are predominantly lesions of the compound type and should be so considered until proved otherwise Few of these lesions are fully mature intradermal nevi in that no junctional activity is detectable

The verrucous nevus is a pigmented lesion with a digitate, elevated surface Most of these are compound nevi or intradermal nevi with residual sites of junctional activity These most commonly appear on the trunk, and it should be assumed clinically that these are lesions with junctional activity The remaining clinical types of lesions, namely, the sessile lesion, the polypoid lesion, the pedunculated lesion, and the dome-shaped lesion, are mostly mature intradermal nevi without significant junctional activity

Removal of Nevi

In the clinical evaluation of the histological type of melanocytic nevus, one should consider (1) the clinical morphology of the lesion, (2) the age of the patient, (3) the age and rapidity of development of the lesion itself, and (4) its association with other lesions of a similar type I feel that this clinical information, when correctly interpreted, can serve as a useful guide for the clinical management of these lesions It is obvious that lesions with suspected junctional activity, such as the flat nevus the slightly elevated nevus, the nevus with a halo, and the verruciform nevus, should not be treated with superficial destructive measures If they are to be treated they should be excised and examined histologically Malignant melanoma is exceedingly rare in childhood, and though it is much more common in the adult, it is a relatively infrequent malignancy of the skin On the other hand, pigmented nevi are commonplace, and it has been estimated that there are an average of 20 melanocytic nevi on each individual The chances of a lesion becoming malignant are approximately 1 in 1 million [10], therefore, the validity of the dictum that melanocytic nevi should be removed routinely for prophylactic purposes has never been settled [10] I feel, however, that the facts set forth in this paper will help to contribute some information to this question Certainly only those lesions suspected of junctional activity need be removed prophylactically Furthermore, probably only those lesions in sites subject to trauma should be treated in this fashion Inasmuch as lesions on the distal extremities, especially those on the palms and soles mature at the slowest rate, the removal of lesions from the palms and soles may be indicated, although these may be so numerous at times that routine removal of them becomes more or less impractical On the other hand those lesions that clinically appear to have no junctional activity need not be subjected to prophylactic removal In order to be sure that malignancy is not already present in a nevus at the time of removal all such specimens should be examined histologically This is important because, in spite of the pronouncements in the literature to the effect that the partial removal of a pigmented nevus gives rise to malignancy, no lesion histologically proved benign has ever been recorded as degenerating into a malignant melanoma after part of it has been removed [10]

I have dealt exclusively with the removal of nevi showing no clinical suggestion of malignant degeneration Such signs should always be looked for These include a sudden change of color of the lesion, a recent infiltration of pigment into the surrounding normal skin, the appearance of inflammation and ulceration, and the development of satellite adenopathy If any of these signs occurs in any type of pigmented nevus, the lesion should be widely excised surgically and examined histologically I feel that if these rules are followed the physician will have a reasonably secure and accurate guide upon which to base his indications for the management of melanocytic nevi

Summary

On the basis of a simple classification of pigmented nevi in which each type is named by the essential cell constituting its structure, the term "melanocytic nevus" is the appropriate designation for the common pigmented mole The melanocytes at the epidermodermal junction, through a process of multiplication and extrusion into the corium called junctional activity, give rise to the common melanocytic nevus with all its clinical variations Junctional activity is considered to be a necessary prerequisite for the development of melanoma when it arises from a preexisting nevus Those melanocytic nevi classified as flat lesions, slightly elevated lesions, elevated lesions with pigmented halos and verruciform lesions are apt to have junctional activity, while polypoid, dome-shaped, sessile, and pedunculated lesions are usually free of this histological feature Lesions that on the basis of their clinical features may have junctional activity should if treated, be totally excised and examined histologically

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PHYSICAL AND PHYSIOLOGICAL CLUES FOR DIAGNOSING ECZEMA

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and
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• *The patient with atopic eczema is likely to have a personal and family history of hay fever, asthma, and eczema He has a type of pallor caused by constant cutaneous vasospasm and a labile cutaneous vascular reaction pattern manifested by certain responses to stroking and to intradermal injections of drugs His blood pressure is low but rises into the hypertensive range in the cold pressor test His skin is dry, is easily chapped, and manifests sweat retention in various ways He is more liable than most people to juvenile cataract*

This type of patient gives more immediate positive reactions to skin tests than does the average person and frequently shows a pustular reaction at 48 hours to a patch test with 5% solution of nickel sulfate His emotional reactions are likewise characteristic of a certain personality pattern These facts aid in the recognition of atopic dermatitis and determine the course of treatment

Eczema is not a disease but a descriptive term that connotes itching associated with heat, redness, swelling, vesiculation, and, at times, oozing and crusting There are multiple causes for this syndrome, ranging from an allergic contact dermatitis to a functional neurodermatitis Perhaps the most complex of the eczemas, certainly the type most difficult to understand and most difficult to treat, is atopic eczema In this study we will point out that, in addition to the eczematous lesion, per se, there are definite physical and physiological characteristics in the person who develops atopic eczema In other words, the person susceptible to atopic manifestations is, in a sense, different from an estimated 85 to 90% of the population of the United States As practitioners of medicine, recognition of this type of person at any time from infancy through adulthood is of great value in the understanding and diagnosis of the eczema It is of equal importance in enabling one to predict the potential ability to develop eczema or other evidences of atopic allergy, such as asthma and hay fever

Atopy is not characterized by one etiology and one treatment It is a syndrome with many facets In our evaluation of a particular patient we range etiologically from the allergic to the psychosomatic, from the winter problems of ichthyosis to the summer problems of the sweat retention syndrome, and from urticaria to eczema We will evaluate the person susceptible to atopic eczema step by step First, there is an abnormally high incidence of atopic diseases (hay fever asthma, and eczema) in such a person and in his family In the patient himself, any one or several of the distinct chronological phases of dermatitis may have occurred infantile eczema, childhood eczema (from 6 to 10 years of age), or the adolescent or adult form of the disease (from 13 to 30 years of age)

Physical Characteristics

On physical examination, the patient with a frankly eczematoid or lichenified atopic eruption is not difficult to recognize There are other components, however, that even the patient with unerupted atopic dermatitis possesses We have all been impressed with the pallor of these persons, especially over the central face and bony prominences This pallor is due to a constant cutaneous vasospasm It has often been said that this type of person has a tired look about the eyes This look of fatigue may be due to a hyperpigmentation that is particularly common around the lower eyelid (fig 1A) A fold of skin of the lower eyelid deserves special attention There is a small extra line or groove, sometimes called a Mongolian pleat, of the lower lid that is present at birth and is easily identified in the infant Its recognition in older persons may be more difficult because of the many lines appearing about the eyes (fig 1B)

The skin of the person susceptible to atopic eczema is dryer than average Occasionally a frank ichthyosis is present This scaling and chapping is most pronounced on the extensor surfaces of the extremities where the density of the sweat glands is low Such scaling is usually absent in the flexural areas where the density of sweat glands is higher and where emotional sweating constantly hydrates the stratum corneum (fig 1C) Another indication of this type of skin is seen in the follicular hyperkeratosis on the extensor surfaces of the extremities, which is known as keratosis pilaris (fig 1D) Such skin is easily chapped and split in the winter, when the relative humidity of the atmosphere falls below 50% When such a climatic situation arises, the stratum corneum in nonsweating areas loses water faster than it can be replaced by the water of diffusion from below A dehydrated stratum

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Read before the Ninth Clinical Meeting of the American Medical Association Boston Dec 2, 1955 corneum containing less than 10% water is a brittle layer that will split and crack if it is flexed or bent[1] Although the climate or proper skin care may have eliminated the dry skin, other evidence of the predisposition to chapping is seen in the palms These contain an increased number of fine lines or markings in most persons susceptible to atopic eczema (fig 2A)

The cutaneous vascular physiology in these persons demonstrates many paradoxes that are, as yet, not completely understood We have mentioned the pallor of vasoconstriction However, the susceptible person has a cutaneous vascular reaction pattern that is as labile as his personality When the skin of these persons is essentially normal and without lichenification, it may still develop cholinogenic urticaria due either to emotional or to heat stimuli Such whealing is caused by a hypersensitivity or a hyperreactivity to acetylcholine It is easily identified clinically by its small papular wheal with a large surrounding flare[2] The itching associated with such a whealing mechanism is severe and, for the most part, more intense than the itching of histaminic urticaria Such cholinogenic urticaria may sometimes be the first cutaneous abnormality in these persons The scratching of these hives may induce the itch-scratch mechanism in the sites of predilection of the disease such as the face, neck, and antecubital and popliteal areas

When one strokes the normal skin of a person susceptible to atopic eczema with a pointed blunt instrument, the usual triple response of Lewis and Grant[3] is elicited showing, first, a red line confined to the line of stroke, second, the axon-reflex flare or red reaction about the red line, and, finally, a wheal replacing the red line and limited to the line of stroke When histamine is injected intradermally into the susceptible patient, the axon-reflex flare of the triple response may not develop Allergists have also noted the absence of a flare about positive intracutaneous wheal reactions to protein allergens In general one may say that, because of vasoconstriction, the axon-reflex flare about the red line or wheal tends to be less in a clinically normal person susceptible to atopic eczema than in a person not susceptible

This reaction, however, is altered even further when the skin is only mildly abnormal The red line of vasodilatation is replaced by a white line of vasoconstriction At first the axon-reflex flare is still present, but, if the skin is more severely involved the white line of vasospasm is the only vascular response that results from stroking the skin (fig 2B) This is an excellent diagnostic and prognostic sign, since we feel that this white line is the first abnormality to appear and the last to leave when the susceptible person is having difficulty with his skin

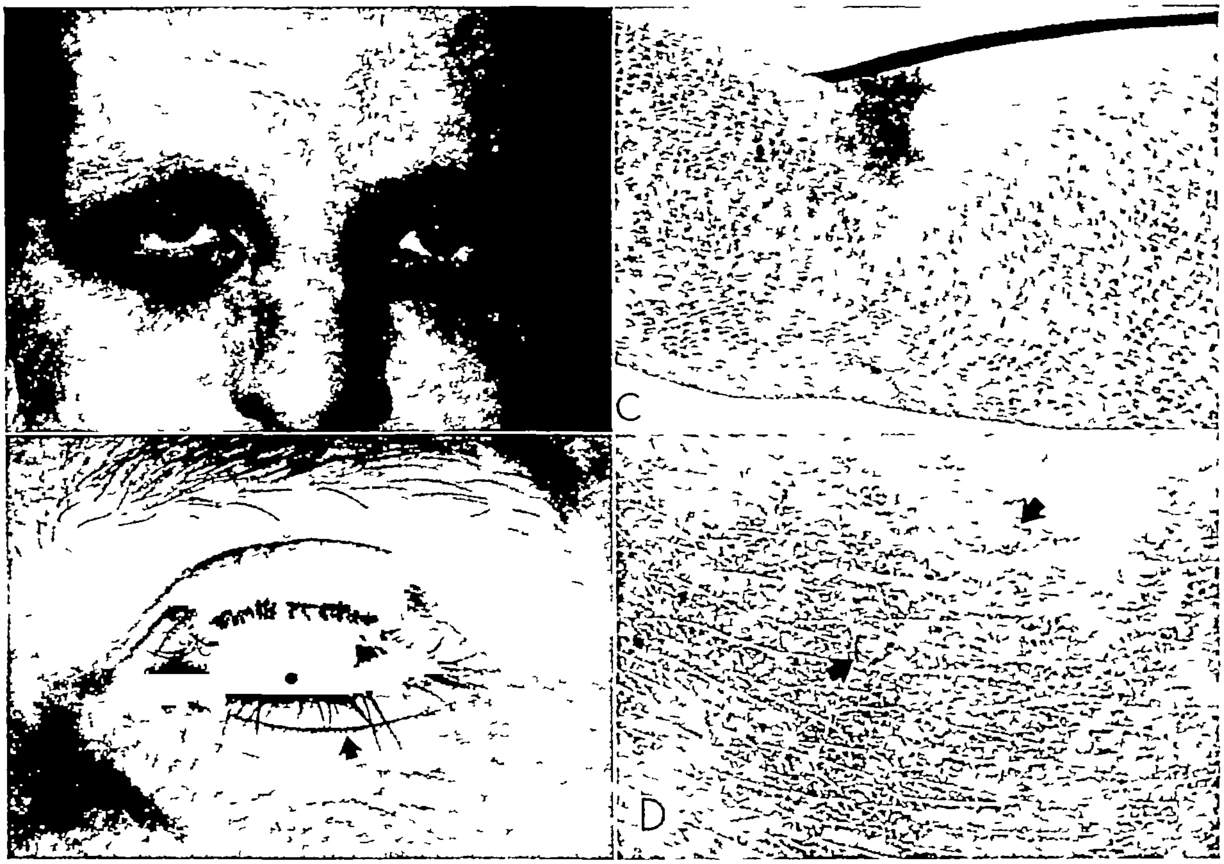

Fig 1 —*A* tired look of person susceptible to atopic eczema due to hyperpigmentation around lower eyelid *B* small extra groove of lower eyelid (arrow) commonly seen in person susceptible to atopic eczema

C frank ichthyosis Note absence of dryness and scaling in flexural region. *D* keratosis pilaris in which follicular hyperkeratoses (arrows) are pronounced

Physiological Characteristics

There are other paradoxical aspects of atopic vascular physiology in addition to this general cutaneous vasospasm It has been shown[4] that, although the blood pressure of these susceptible persons is low, their hyperreaction to the cold pressor test is almost in the hypertensive range They also demonstrate a swifter rate of cooling in a cool environment and a delayed rate of warming in a warm environment when compared with normal persons From the laboratory standpoint several additional tests can be made concerning the vascular responses of susceptible persons Williams[5] has shown that the intramuscular administration of histamine to patients with atopic dermatitis produces a greater increase of skin temperature at the sites of predilection for this disease than is produced in the control group of normal persons

One might postulate that the vasoconstrictive phenomenon in the person susceptible to atopic eczema is the result of either an increase in some circulating epinephrine-like substance or an increased sensitivity of the cutaneous blood vessels to normal amounts of such a substance Yet, when one introduces epinephrine into the skin of the susceptible person, a normal vascular response occurs However, a paradox develops when acetylcholine is injected into the skin of a susceptible person presenting a white line when the skin is stroked Instead of producing the usual red reaction locally at the site of injection, due to the direct action of the drug on the blood vessels, these persons develop vasoconstriction or a "delayed blanch" reaction[2b] (fig 2C) The spread of this delayed blanch resembles the response to epinephrine It consists of white pseudopods of vasoconstriction not associated with whealing and is reminiscent of the lymphatic spread of a vasoconstricting substance Surgical sympathectomy does not alter this delayed blanch reaction nor does a locally or intravenously administered anesthetic agent The total understanding of such a paradoxical reaction to intradermally injected acetylcholine has yet to be reached However, it has been shown that, if a tissue is deficient in physiological amounts of acetylcholine, the addition of more acetylcholine will produce vasoconstriction rather than the usual dilatation[6] Whether the skin of susceptible persons is actually deficient in physiological amounts of acetylcholine is not known

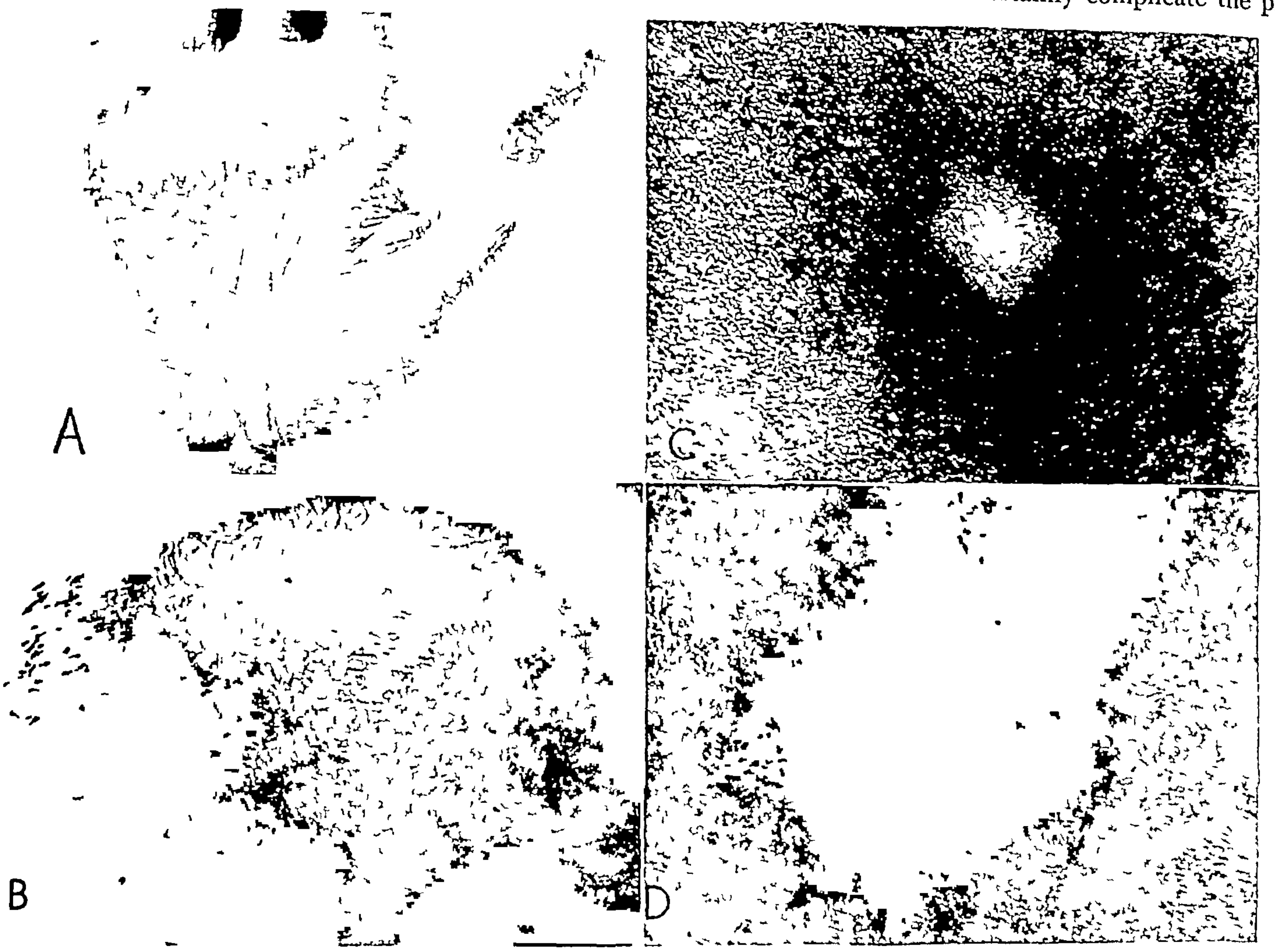

Fig 2 —A palm of person susceptible to atopic eczema containing increased number of fine lines and markings B white line of vasospasm produced by firm stroking of skin of forehead in patient with atopic eczema C, delayed blanch' reaction to intradermally injected acetylcholine in person susceptible to atopic eczema This resembles normal response to epinephrine D pustular reaction to patch test of 5% solution of nickel

The sweat retention phenomenon is always a problem with these persons The heat-rash diseases resulting from sweat retention, such as miliaria rubra, miliaria pustulosa, and miliaria profunda, are all easily produced In the susceptible person, these diseases of sweat retention certainly complicate the picture and may precipitate the itch-scratch cycle As one might suppose, a hot humid climate would be poorly tolerated and tend to produce prickly heat On the other hand, sweat retention is an ever-present problem since the susceptible person will sweat with emotional stimuli in the flexural areas of the extremities, which are the sites of predilection of this disease

A peculiar complication of atopic eczema is the development of cataracts in about 10% of cases[7] These cataracts begin in the posterior pole of the lens, in contrast with the usual senile cataracts or radiation cataracts that begin in the anterior pole In general, the more severe the dermatitis the more likely is the development of these cataracts Every person, therefore, with atopic dermatitis should have a slit-lamp examination by an ophthalmologist at regular intervals

So far, we have been discussing those factors that make the person who is susceptible to atopic eczema different and have stressed that the atopic problem is complicated We have not made any attempt to consider two important etiological mechanisms in the production of this disease, that is, the allergic problem and the emotional problem Knowledge of both of these mechanisms aids in the diagnosis and evaluation of the patient with atopic eczema Atopy is associated with an abnormally high incidence of positive immediate wheal reactions to scratch or intracutaneous skin tests with common protein antigens[8] Positive patch-test reactions to eczematogenic allergens are of normal or even subnormal incidence in the person with atopic eczema,[9] with one exception A person with atopic eczema will frequently show a pustular reaction at 48 hours to a patch test of a 5% solution of nickel (fig 2D) This is another reaction pattern that we believe to be of value in diagnosing atopic eczema

In recent years several excellent psychosomatic studies have dealt with patients with atopic eczema[10] The patterns of their personalities are being better understood and can be evaluated by competent psychiatric examiners Allergic and emotional factors, while of importance, are lengthy subjects in themselves, and it is not within the scope of this study to discuss them We must emphasize, however, that such information should be included in the total evaluation of the person susceptible to atopic eczema in order to understand the problem fully

Conclusions

All physical and physiological factors characteristic of the person susceptible to atopic eczema must be considered by the attending physician, be he general practitioner, allergist, ophthalmologist, psychiatrist, or dermatologist Our greatest success in handling these patients has resulted from our program of acquainting them with the complexities of their disease Our constant theme is that persons susceptible to atopic eczema are different physically and physiologically It is only when all the complexities that atopy connotes are completely understood by the physician and his patient that therapeutic success can be achieved

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HIGH-SPEED CINERADIOGRAPHY AND ELECTROCARDIOGRAPHY

A NEW METHOD FOR THE STUDY OF HEART DISEASE IN HUMANS

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• *Motion pictures of the heart as it appears in fluoroscopy can be made by using a camera in connection with an image intensifying tube The pictures can be greatly slowed for study by various means, so that the events of one second take almost 14 seconds to view on the screen Detailed analysis of the movements of the heart shadow can be made with reference to other aspects of cardiac function, since the electrocardiogram, ballistocardiogram, phonocardiogram, or any other record transmissible to an oscilloscope, can be photographed in synchronism with the heart shadow*

According to Reynolds[1] efforts to make motion picture recordings of fluoroscopic images date back to the ideas of John MacIntyre, who first experimented along these lines in 1896, only one year after Roentgen discovered the x-ray In 1928, Reynolds[2] published a discussion of the technical problems that faced early workers in cineradiography In 1936, Janker[3] successfully obtained motion pictures of the fluoroscopic images of the esophagus, stomach, duodenum, colon, joints, the beating heart, and organs during deglutition and respiration He mentioned the possibility of recording an electrocardiogram simultaneously with the cineradiogram but apparently did not actually attempt such a recording More recently Ramsey and associates[4] as well as Wegelius[5] have obtained excellent cineradiographic films

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Read before the American College of Physicians Los Angeles, April 19 1956

In 1951, Fields and co-workers[6] described a technique for making high-speed cinematograms of the beating heart of a dog with a simultaneous electrocardiogram This technique of high-speed cine-electrocardiography has been of great value in various experimental cardiac problems, especially those of coronary artery disease Kjellberg,[7] while making an angiocardiogram, electrically marked an electrocardiogram at the instant of exposure in order to determine at what point in the cardiac cycle the angiocardiogram was photographed However, the simultaneous recording of high-speed cineradiograms and electrocardiograms in humans has not been previously reported The purpose of this paper is to describe the method used in this laboratory for the recording of high-speed cineradiographic films of the heart simultaneously with an electrocardiogram superimposed on the same film

Previous studies[8] on the myocardial contractility of dogs by means of high-speed cinematography have indicated the great value of analysis of the motion of the cardiac border With the development of a technique allowing high-speed cinematography of cardiac fluoroscopy with a superimposed electrocardiogram, more extensive study can be made, and it is expected that a valuable tool will be achieved

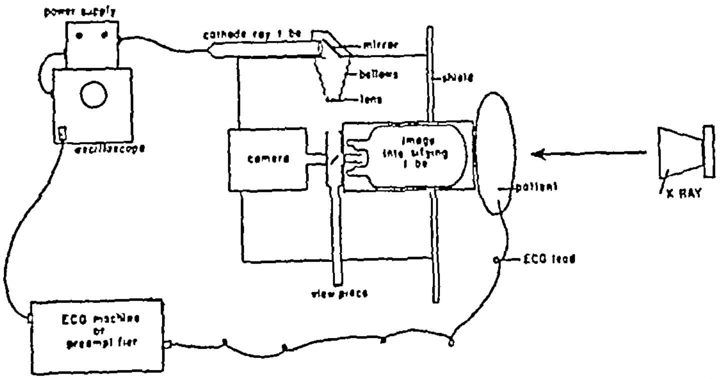

Fig 1 —Block diagram of the physical relationships of the apparatus for simultaneous recording of cineradiogram and electrocardiogram

Equipment

The basic x-ray equipment needed is a 100-kv machine built by the North American Philips Company A Philips image intensifier, with a green fluoroscopic screen approximately 5 in in diameter and a viewing image 0 5 in in diameter, is mounted in a cylindrical metal housing Pictures are taken with a Bell & Howell "Eyemo" 35-mm motor-driven camera at speeds up to 55 frames per second A Summicron 2-in focal length, f2 0 lens is used We have utilized Kodak experimental Linagraph Ortho film After the 35-mm film is developed, it is reduced in size to a 16-mm film Reduction of the film from 35 mm to 16 mm facilitates playback projection and yields films of better definition and resolution than would be obtained by the use of 16-mm film in the original photography

The electrocardiogram is obtained by tapping the output of a Sanborn Viso-Cardiette and leading it to a Dumont oscilloscope, model 304-a The output of the oscilloscope is then led to a Dumont 3 RP-7 long-persistence cathode ray tube, which is driven by a high-voltage power supply adequate for the requirements of the tube as outlined by the manufacturer Placement of the oscilloscope between the amplifier of the Sanborn Viso-Cardiette and the cathode ray tube permits monitoring of the electrocardiogram and allows fine adjustments such as for sweep rate and amplitude The electrocardiographic image from the long-persistence cathode ray tube is introduced into the camera lens by an optical system of lenses and mirrors, so that, when the shutter of the camera is open, the electrocardiographic image and the intensified fluoroscopic image are superimposed on the camera film Figure 1 is a diagram of the physical plan of the apparatus showing the relationships of the various components

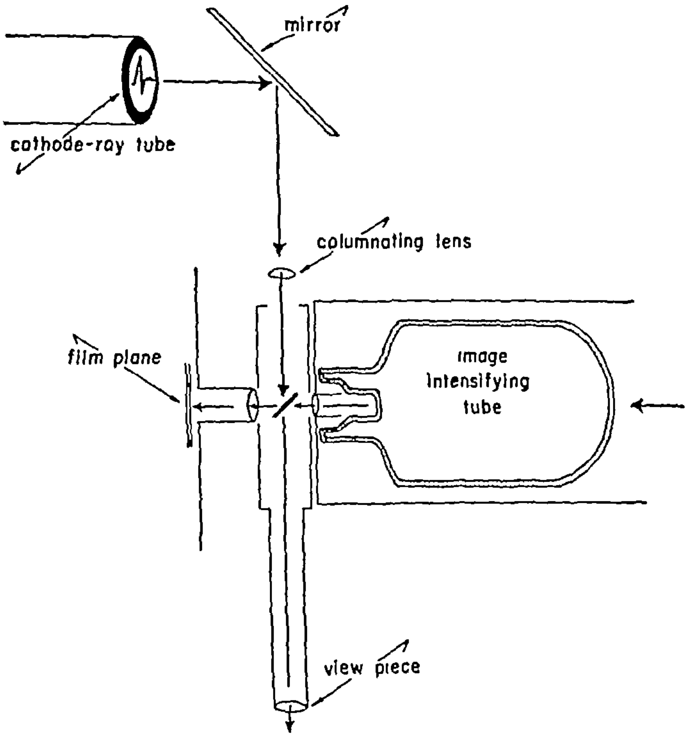

Fig 2 —Detailed diagram of the optical system for superimposing the electrocardiogram on the fluoroscopic image of the heart

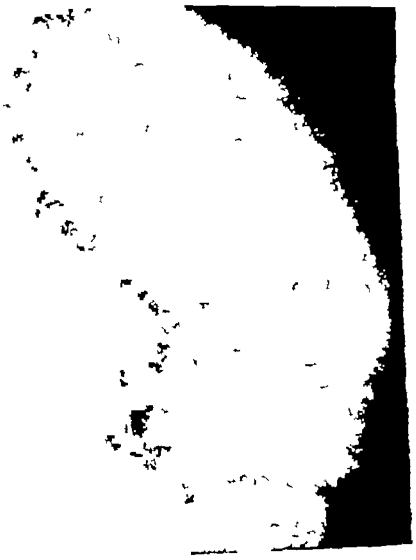

Fig 3 —Enlarged cineradiogram, from a single 35-mm frame The left lateral border of the heart is seen in the posteroanterior position The heart is in systole The QRS complex appears as an after trace and the T wave is about to be written

to each other Figure 2 is a detailed sketch of the optical system for transmission of the electrocardiographic image into the camera Figure 3 is an enlargement of a single frame from one of our films

Procedure

The patient is placed in front of the image-intensifier tube and the desired view of the silhouette of the heart with the superimposed electrocardiogram is obtained under fluoroscopic control by looking through the view piece Measurements of the thickness of the chest are taken and the appropriate kilovoltage and milliampere settings are obtained from a graph in the usual manner The x-ray dosage that the patient receives has been monitored and found to be a negligible radiation dosage The desired electrocardiographic lead is selected by appropriate placement of the exploring unipolar electrode on the body of the patient, that is, a lead is chosen that most closely represents the area to be studied For example, if trouble is suspected at the apical area of the heart, the patient is rotated to such a position that the apical portion of the heart is seen best on fluoroscopy and the electrode exploring the precordium is placed as close as possible to the apical silhouette without actual interference with the fluoroscopy The electrocardiogram is next adjusted for the proper brightness and focus The camera is then run at 32 to 55 frames per second Subsequently, by double printing the negative and running the playback projector at 8 frames per second, the motion is slowed almost 14 times Thus, the events that were recorded during one second of exposure will take almost 14 seconds to view on the screen

Detailed analysis of motion of the cardiac borders can be made by the use of a Vanguard motion analyzer, which permits vertical or horizontal displacement measurements in units of 1/1,000 of an inch Exact correlation between the electrocardiogram and the movements of the border can be made When making such fine measurements of the movement of the cardiac border, one must be very careful to distinguish rotational movement of the heart from the systolic shortening of the diameter of the heart due to muscular contraction

Other Uses of Technique

It is possible to modify the apparatus so that simultaneous cardiac catheterization pressures and angiocardiograms, phonocardiograms, or ballistocardiograms may be recorded instead of electrocardiograms The recording of a ballistocardiogram would require more extensive modification of the apparatus than when a phonocardiogram is used but would appear feasible and might give valuable information on the nature of some components of the ballistocardiogram that are not completely understood[9] The apparatus could also be modified to record simultaneously a phonocardiogram and an electrocardiogram

Since the fundamental action of the heart is that of a mechanical pump, it is to be expected that detailed analysis of the motion of the heart plus an electrocardiographic record made simultaneously can lead to basic diagnostic and physiological information For example, fluoroscopic demonstration of good contractility without ballooning of an infarcted myocardial area represented by QS waves is significant evidence that the QS may be a "mural-type" QS wave It has been established experimentally that the presence of a QS wave typical of myocardial infarction on an electrocardiogram does not necessarily represent complete death of the myocardium[10] A myocardial infarct manifested electrocardiographically by a mural-type QS wave may contain significant amounts of viable tissue capable of good contractility This is in contrast to the complete death of muscle with no viable myocardium capable of contraction that is also manifested by a QS wave This latter type is referred to as the "cavity" QS wave of complete infarction Mural-type QS waves have been recorded in both dogs and humans with coronary artery disease

Additional examples of the possible uses of the technique of cineradiography with simultaneous electrocardiography are in studies of the genesis of certain cardiac murmurs, of splitting of sounds, and of gallop rhythms Such studies appear to be worthy of consideration

Comment

It is felt that, as techniques are improved by the development of more powerful image intensifiers, faster lenses, better cameras, and more sensitive film, more information will be obtained by this procedure High-speed cinerecording of simultaneous fluoroscopic, electrocardiographic, and other images is a promising technique by which valuable diagnostic information on heart disease can be obtained Moreover, the procedure does not subject the patient to any inconvenience

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The Philips image intensifier used in this study was supplied by the Henry N Beets Company Los Angeles

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HYPERTENSION ASSOCIATED WITH PREGNANCY

INCIDENCE AND TREATMENT, WITH PARTICULAR REFERENCE TO PROTOVERATRINE

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and
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• *The apparent incidence of hypertension in pregnancy among the patients in one hospital from 1941 to 1944 was 87 per 1,000, the comparable figure for the period 1951 to 1954 was 47 General improvement in prenatal care and limitation of sodium intake in particular are considered as plausible explanations*

The course of pregnancy in nine patients with toxemia, eight with hypertensive vascular disease, and four with both conditions is analyzed with special reference to the effects of protoveratrine This drug, injected intravenously in doses of 0 12 mg or administered slowly by intravenous infusion, gave prompt reductions of blood pressure and was found to have certain advantages over other hypotensive drugs now in use Four case histories give details illustrating the effects of oral as well as parenteral administration of protoveratrine

Convulsive toxemia of pregnancy (eclampsia) is now infrequently seen at the Boston Lying-In Hospital, hypertension associated with pregnancy and nonconvulsive toxemia, however, continues to be a problem of management It is the purpose of the first part of this study to compare the recent incidence of hypertension associated with pregnancy with the incidence of a period 10 years before The second part of the study presents our experience with the use of protoveratrine in the treatment of hypertension associated with pregnancy

Protoveratrine, an alkaloid from Veratrum album, has been found useful as an antihypertensive drug in all types of arterial hypertension[1] It contains two alkaloids, A and B, which are similar in action when given parenterally but differ by one oxygen atom Protoveratrine A accounts for most of the effect when protoveratrine is given by mouth, since 10 to 20 times as much protoveratrine B is required to produce a similar action on the blood pressure This difference in action is considered to be a result of a difference in absorption from the intestinal tract

Method of Study

The incidence of hypertension associated with pregnancy was determined for a three-year period from 1941 to 1944 in only the Boston Lying-In Hospital and compared with the same period 10 years later from 1951 to 1954 The classification of hypertension and proteinuria includes principally patients with hypertensive vascular disease and a few patients with renal disease and hypertension Preeclampsia, mild, was diagnosed when proteinuria (1 gm per 24 hours or less) appeared during pregnancy and the blood pressure was elevated but did not exceed 160/100 mm Hg When the blood pressure was greater than 160/100 mm Hg, with proteinuria greater than 1 gm , or when there were symptoms, the preeclampsia was classified as severe

From a number of similar cases, 21 patients with hypertension and pregnancy have been observed carefully and have been treated with protoveratrine alone or in combination with bed rest and dietary sodium restriction These patients were seen both in the house service of the Boston Lying-In Hospital and in consultation in the private pavilion They were followed as inpatients and outpatients, and protoveratrine was administered both intravenously and by mouth In those patients in whom it was thought desirable to reduce the blood pressure promptly, protoveratrine was given by intravenous injection and followed by an intravenous infusion over a period of 12 to 24 hours Other patients with hypertensive disease were given protoveratrine by mouth three or four times a day in an effort to control their blood pressure during the course of pregnancy The patients were classified as follows (1) toxemia of pregnancy patients in whom there was no previous history of hypertension and in whom the hypertension disappeared within one month after delivery, (2) hypertensive vascular disease patients in whom hypertension was present before pregnancy, and (3) hypertensive disease and toxemia of pregnancy patients with presumably a combination of 1 and 2, in whom the hypertension exceeded the early pregnancy blood pressure and proteinuria with or without symptoms appeared

Results

Analysis of the figures in table 1 indicates an increase in the number of patients classified as having hypertension and proteinuria This is thought to be due to the change in criteria of diagnosis for the years 1951-1954, so that some patients who would have been classified as having preeclampsia in 1941-1944 were classified as having hypertensive vascular disease in 1951-1954 The striking change, however, was the decrease in the number of patients with preeclampsia from 1941-1944 to 1951-1954, and this change is statis-

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Read before the Ninth Clinical Meeting of the American Medical Association *Boston, Nov 30 1955*

TABLE 2—*Summary of Diagnosis and Treatment of Twenty One Patients with Hypertension and Pregnancy*

Patient	Age	Wk of Pregnancy When First Seen	Diagnosis	Blood Pressure Level Mm Hg	Proteinuria	Retinopathy	Treatment: Dietary Sodium Restriction	Treatment: Weight Reduction Diet	Treatment: Bed Rest	Treatment: Protoveratrine I V Mg	Treatment: Protoveratrine Oral Mg	Fetal Viability	Comment
Toxemia													
R G	35	33?	Toxemia	165/100	3+ 200 mg per 100 cc	0	1+	1+	1+ 0	0	1 35 3 i d	+	Cesarean section aftr 5 wk of treatment uneventful pregnancy 1 yr later
M O	28	36	Toxemia mild post partum	170/90	1+, 150 mg per 100 cc	0	1+	0	1+	0 11	1 25 3 i d	+	Headache and convulsion 5 days post partum blood pressure rose to 230/120 mm Hg positive family history of hypertension
F R	37	34	Toxemia	250/140	4+, 1 000 mg per 100 cc	0	1+	1+	1+	0 1 infusion	0	0	Edema 3+ delivered day after entry of macerated fetus good control of blood pressure
M H	20	35	Toxemia	150/100	3-4+, 1 2 gm per 24 hr	0	+	0	+	0	0 8-0 9 3 i d	+	Labor induced after 1 wk, since proteinuria persisted
E D	20	36	Eclampsia	200/100	4+, 1 500 mg per 100 cc	0	+	0	+	0 12 infusion	0	0	Unconscious on entry protoveratrine and other used to control blood pressure and convulsions
I G	38	30	Toxemia	160/90	1+, 50 mg per 100 cc	0	+	0	+	0 11 infusion	0 75	+	Relief of nausea and headache cesarean section
R W	32	34	Toxemia	210/110	4+ 2 000 mg per 100 cc	0	+	0	+	0 1 infusion		+	Control of hypertension cesarean section
O G	37	35	Preeclampsia history of toxemia 14 yr before with blood pressure of 200/100 mm Hg	190/100-105	3+ 300 mg per 100 cc	0	+	0	+	0 12 infusion	0	+	Relief of headache and dizziness spontaneous delivery without complications
Hypertensive Vascular Disease													
A D	21	16	HVD* severe	240/160	1+	2+	+	0	0	0	0 5-0 7 6 7 i d	0	Sympathectomy 1951 for severe hypertension with advanced retinitis improved after starting protoveratrine therapy aggravation of hypertensive disease with pregnancy with hematuria and papilledema fetal death at 28 wk died 7 wk later of dissecting aneurysm
L A	28	26	HVD CVA† three yr before	170/130	1+ 40 mg per 100 cc	0	+	0	0	0	1 2-1 3 3-4 i d	+	No apparent aggravation of hypertension during pregnancy protoveratrine given orally last 2½ mo of pregnancy
P O	33	31	HVD	180/90	0	0	+	0	0	0	0 75-0 85 4 i d	+	Known transient hypertension for 2 yr
B R	31	24	History of high blood pressure 1st pregnancy	110/85-95	0	0	+	0	0	0	0 8 3 i d	+	Family history of hypertension uneventful 3rd pregnancy on regimen of sodium restriction and phenobarbital
H B	30	24	HVD	200/120	1+	0	+	0	0	0 12	0 5-0 6 4 i d	0	Headache photophobia and fetal death at 30 wk high blood pressure known for 7 yr toxemia of pregnancy 4 yr before patient cooperated poorly
D W	35	32	HVD	180/130-160/100	1+	0	+	0	0	0	0 7 4 i d	+	Protoveratrine given orally for 5 wk until uneventful delivery blood pressure post partum 160/90 mm Hg
R P	31 32	8 12	HVD history of toxemia with fetal death	140/90 150/90	0 0	0 0	0 0	+ +	0 0	0 0	0 75 2 i d 0 6-0 7 3 i d	+ +	Normal delivery Normal delivery
M B	31	33	HVD	210/110	1+ 30 mg per 100 cc	0	+	0	+	0 12-0 08	1 2 every 6 hr	+	First known hypertension in 1946 during 2nd pregnancy tourniquets, digitalis morphine given during first 10 hr
H C	39	24	HVD history of toxemia	180/100	0	0	+	0	0	0	1 0 3 i d	+	Ante partum hemorrhage placenta praevia resulting in premature delivery premature baby died
Hypertensive Vascular Disease and Toxemia													
A R	24	32	HVD and toxemia	210 100	4+ 700 mg per 100 cc	2+	+	0	+	0 12	0 8 4 i d	+	Transient hypertension noted at 2 mo; premature baby delivered by section but died 2 days later
H O	34	30	HVD and toxemia	190/110	4+	0	+	0	+	0 11	1 7=2 4 i d	+	Much reduction of proteinuria on treatment
A P	23	37	HVD and toxemia	160/100	2+	0	+	0	0	0	0 75-0 9 4 i d	+	Positive family history of hypertension 2 mo post partum blood pressure 180-160/90-95 mm Hg without proteinuria
D L	42	30	Obesity 350 lb (158 7 kg) hypertension noted 14 wk	40/150	4+ 750 mg per 100 cc	0	+	+	+	0 12	1 5 3 i d	+	Cerebral thrombosis post partum hypertension persisting post partum but less severe

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* Hypertensive vascular disease † Cerebrovascular accident

tically significant (significance ratio=12 4) The number of patients with eclampsia in each period was small but also showed a decrease for the period 1951-1954 The over-all incidence of hypertension of all types associated with pregnancy declined from 87 per 1,000 deliveries to 47 per 1,000 deliveries

In table 2 are presented the pertinent data on the 21 patients in this study Of the 22 babies born, since one patient had two pregnancies, there were 4 stillbirths and 18 live births

Toxemia of Pregnancy—There are eight patients classified as having toxemia of pregnancy, one of whom had quite severe convulsions and who was one of two "unregistered" patients in the study Her case will be presented as a representative example of severe toxemia of pregnancy with convulsions

Case 1 —A 20-year-old gravida 1 para 0 (E D) entered the hospital during the 36th week of pregnancy There was a history of a gain of 36 lb (16 3 kg) in weight during this pregnancy, mostly during the last trimester, which had been progressive during the two weeks before entry This period was associated with general malaise, and vomiting developed two days before admission She had not been seen for several weeks by a doctor The day of admission she awoke at 2 a m with a bout of vomiting Shortly thereafter she had a seizure for the first time and was taken to another hospital, where she was given magnesium sulfate, 5 cc of 50% solution, and had four more convulsions At this point she was transferred to the Boston Lying-In Hospital at 5 a m

On physical examination the patient was semicomatose, pale, and quite edematous Blood pressure was 150/100 mm Hg, with a pulse of 90 per minute Ankle, tibial, and sacral edema was noted Only 20 cc of urine was passed during the first six hours in the hospital, with a specific gravity of 1 028 and a 4+ proteinuria (1,500 mg per 100 cc) The urine contained many white blood cells, red blood cells, and some bacteria, with many hyaline and coarsely granular casts The hemoglobin level was 14 gm per 100 cc , and the hematocrit was 41% The leukocyte count was 22,000 per cubic millimeter She was placed in an oxygen tent in a dark, quiet room She was noted to be hyperreactive to any stimuli, such as needle injections or blood pressure determinations Her entry medication consisted of phenobarbital sodium, 240 mg given at 7 a m , which resulted in some quieting However, between 10 a m and noonday there were five generalized convulsions The rectal temperature was 104 F (40 C) At this time 0.12 mg of protoveratrine was given by intravenous injection and was followed by an intravenous infusion of 5% glucose and buffered water containing 0 5 mg of protoveratrine at a rate of 15 to 20 drops per minute, which was sufficient to control the blood pressure The highest blood pressure just before the injection of protoveratrine was 200/100 mm Hg In 15 minutes the blood pressure was 130/80 mm Hg and remained there for the next 12 hours Ether was administered by mask for 14 minutes in an effort to control the convulsions beginning 10 minutes after the protoveratrine injection By 1 p m the patient was relaxed, with only occasional minor, localized, convulsive movements The fetal membranes were ruptured, but this did not result in active labor and a cesarean section was done 18 hours after entry, resulting in the delivery of a stillborn fetus After delivery the blood pressure remained normal at 130/80 mm Hg, and during the next two days a good diuresis resulted and the patient voided 3 liters of urine on the third day Before discharge an additional 6 lb (2 7 kg) of weight was lost

Table 1 —*Comparison of the Incidence of Hypertension Associated with Pregnancy During Period from 1941 to 1944 with Period from 1951 to 1954*

	1941-1944	1951-1954
Mothers Delivered	8,057	6,915
Hypertension and proteinuria	42	92
Preeclampsia		
Mild	574	181
Severe	70	46
Eclampsia	16	5
Total	701	324
Incidence per 1,000	87	47

This patient presented the classical features of severe toxemia of pregnancy, as evidenced by edema, hypertension, and convulsions As is the case in some of these patients, the degree of hypertension was relatively mild at the time of entry However, the blood pressure did increase as the convulsions became more frequent, and, after administration of protoveratrine by intravenous injection and infusion, the blood pressure was maintained at a normal level It was necessary, however, in this patient to administer ether for a short time to control the convulsions These measures enabled the patient's condition to be stabilized so that definitive therapy regarding her pregnancy could be carried out

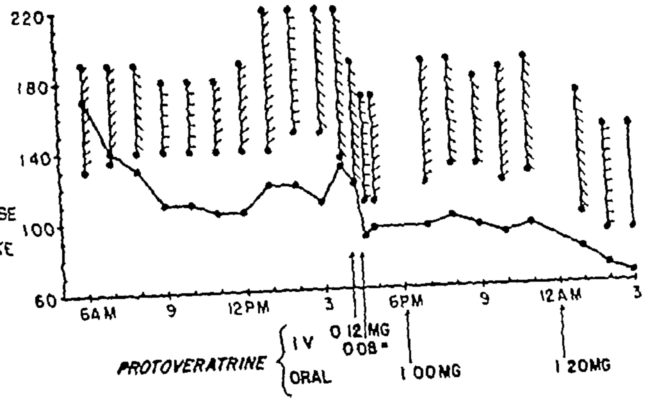

Fig 1 (case 2) —Change in blood pressure and pulse rate after administration of protoveratrine by intravenous injection followed by oral medication as indicated

Hypertensive Vascular Disease—There were nine patients with hypertensive vascular disease who were considered to have hypertension before pregnancy and in whom it was aggravated during pregnancy An illustrative case of this will be presented in which hypertensive heart disease was a prominent feature

Case 2 —A 31-year-old gravida 5 (M B) entered the hospital on Dec 28, 1952, during the 33rd week of gestation, because of dyspnea and vaginal bleeding She had been first found to have high blood pressure seven years before during her second pregnancy, during which time she gained 32 lb (14 5 kg) in weight, had considerable headache, and was said to have convulsions during labor Five years before entry, at the age of 27, she was told by her doctor during the third month of the third pregnancy that her blood pressure was elevated She followed a "no added' salt diet during this pregnancy and gained only 16 lb (7 3 kg) The systolic blood pressure was said to be 200 mm Hg during this pregnancy Three years ago, during her fourth pregnancy, she developed paroxysmal dyspnea during the seventh month, at which time her blood pressure was said to be 185 mm Hg systolic Shortly thereafter she was admitted to the hospital in shock and was treated for premature separation of the placenta (abruptio placentae), following which a macerated fetus was delivered. The blood pressure following this was 180/130-110 mm Hg, and there was mild proteinuria.

She was well until two months before entry in the sixth month of pregnancy, when her blood pressure was stated to be 250 mm Hg systolic. Four weeks before entry, she developed nocturnal dyspnea that persisted until entry. During this pregnancy she had gained only 4 lb (1.8 kg) in weight. Physical examination on entry revealed a dyspneic woman with slight cyanosis of the lips and fingers. She was quite apprehensive but had no pain. The blood pressure was 200/150 mm Hg, pulse 170 per minute and respiration 48 per minute. The cervical veins were distended and moist rales were heard over the lower part of the chest on each side. The heart was thought to be enlarged, and there was a loud apical diastolic third sound. There was 1 + edema of the ankles but no sacral edema.

On entry tourniquets were applied, oxygen and morphine were given, and 1 cc of a mercurial diuretic was given intramuscularly. Intravenous digitalization was attempted with 2 mg of lanatoside C. The patient improved, and the pulse dropped to 100 per minute, with not much change in blood pressure but with symptomatic improvement. However, her pulse rate increased again to 130 per minute and the blood pressure was 220/130 mm Hg with aggravation of the dyspnea. She was then given 0.12 mg of protoveratrine intravenously with only a moderate fall in blood pressure in 20 minutes to 190/125 mm Hg, at which time she was given 0.08 mg more of protoveratrine intravenously, with a further decline in 25 minutes to 170/110 mm Hg and a pulse of 90 per minute (fig. 1). The apical gallop disappeared and the respiratory distress was relieved.

Following this she was placed on therapy with orally given protoveratrine every six hours, in dosage of 1.0 to 1.2 mg, with a good fall in blood pressure to 120-100/70-90 mm Hg one to three hours after the administration of drug. The pulse rate ranged from 65 to 90 per minute. The patient continued to do well and felt much improved. Electrocardiograms taken on entry and 15 days later are illustrated in figure 2.

On Jan. 4, 1953 labor began spontaneously, and because of a prolapsed umbilical cord an internal podalic version was accomplished and a normal baby was delivered. Post partum and consistent with the diagnosis of hypertensive heart disease the blood pressure was moderately elevated at 180/110-120 mm Hg with a pulse of 80 per minute and the patient was asymptomatic. Protoveratrine therapy was discontinued shortly after delivery. The patient was admitted to the hospital in May 1953 for sterilization, at which time the blood pressure was 200/140 mm Hg on entry. During hospitalization the blood pressure during the last four days ranged from 140-150/90-100 mm Hg as checked by the nursing staff.

This patient had hypertensive vascular disease and hypertensive heart disease with congestive heart failure at the time of her last pregnancy, which was successfully treated with sodium restriction and protoveratrine, administered intravenously and orally. It was of interest that she had no significant proteinuria, despite the temporary aggravation of her hypertension. The conventional treatment with tourniquets, oxygen, and digitalis, plus a mercurial diuretic, resulted in some transient improvement, but protoveratrine greatly facilitated the reduction in pulse rate and blood pressure that relieved her respiratory distress.

Hypertensive Disease and Toxemia of Pregnancy.—Four patients were considered to have evidence of hypertensive disease before or early in pregnancy, and there was thought to be an aggravation of this during the last trimester of pregnancy, which is best described as toxemia of pregnancy. Two cases will be presented to illustrate this group.

CASE 3.—A 34-year-old female (H. C.) was admitted to the hospital on April 24, 1953 because of high blood pressure and slight proteinuria while in the seventh month of pregnancy. The family history was positive in that the father died in uremia at the age of 64. The first pregnancy nine years previously terminated in a normal delivery, although in the last week of pregnancy the blood pressure was noted to be 180 mm Hg. During the present pregnancy the patient was examined at approximately 20 weeks, at which time the weight was 145 lb (65.8 kg) and the blood pressure was 148/74 mm Hg. The urine was free of protein. She was checked at monthly intervals and the blood pressure was normal. At approximately 31 weeks the weight was 161 lb (73 kg), the blood pressure was 180/100 mm Hg and there was heavy proteinuria. On her entry to the hospital blood pressure was 190/110 mm Hg with a pulse rate of 74 per minute. Shortly after this the first dose of protoveratrine, 0.11 mg, was given intravenously and within 10 minutes the blood pressure was 140/80 mm Hg with a pulse rate of 56 per minute. During the first 24 hours the proteinuria amounted to 9 gm. Protoveratrine was administered by mouth in increasing dosage for the first three days to an average dose of 1.7 to 2.0 mg four times a day. The response of blood pressure and pulse is illustrated in figure 3. The patient was kept at rest in bed during this time and the decrease in proteinuria was noteworthy. During this period of four weeks the patient had three episodes of nausea and vomiting resulting from protoveratrine. Phenobarbital was given for three days early in the course but did not seem to have any particular effect upon the blood pressure. After four weeks it was decided that the baby had matured sufficiently so that there was a good possibility of obtaining a live baby at the time of cesarean sec

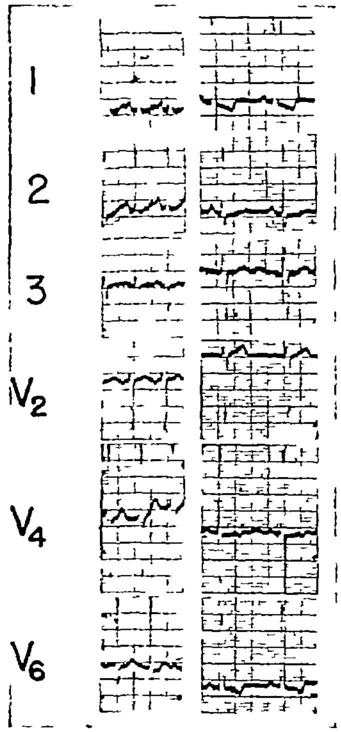

Fig. 2 (case 2).—Electrocardiogram taken the first day (first column) and again 15 days later (second column) demonstrating slowing of heart rate from 150 to 75 per minute. The tracings are consistent with hypertensive heart disease.

tion, and that further delay might result in fetal death Cesarean section was, therefore, carried out on May 21, 1953, and a live baby was delivered Seven days after cesarean section, a 24-hour urine specimen indicated 1 gm of protein per 24 hours When the patient was seen again three months post partum, the urine was free of protein and the blood pressure was 160/90 mm Hg

This patient had a family history of hypertensive disease and had had a previous toxemia of pregnancy During her second pregnancy hypertension and proteinuria appeared at about 31 weeks, and it was thought wise to attempt to continue the pregnancy so that the fetus would be more mature and have a better chance of survival The control of hypertension with protoveratrine was gratifying, and, while no reason is offered for this effect, the decrease in proteinuria during observation was significant

Case 4 —A 24-year-old gravida 1 para 0 (A R) had her last menstrual period on Sept 8, 1954 Examination on Nov 15, 1954, indicated an early intrauterine pregnancy and a blood pressure of 110/80 mm Hg The urine examination was normal At about the same time, a preemployment physical examination indicated a slightly elevated blood pressure of 140-160/100 mm Hg However, on Nov 30, when seen again, her blood pressure was 110/80 mm Hg and the urine was normal On Dec 28, or after three and a half months of pregnancy, the blood pressure was found to be elevated at 180/120 mm Hg and later was noted to be 140/120 mm Hg during the office examination She was seen twice in the next two months, and each time the blood pressure was 140-180/110-120 mm Hg The urine examination was normal On March 21 she was again examined, at which time the blood pressure was 240/160 mm Hg and a large amount of protein was noted in the urine She had had headache and blurred vision of the left eye for three days

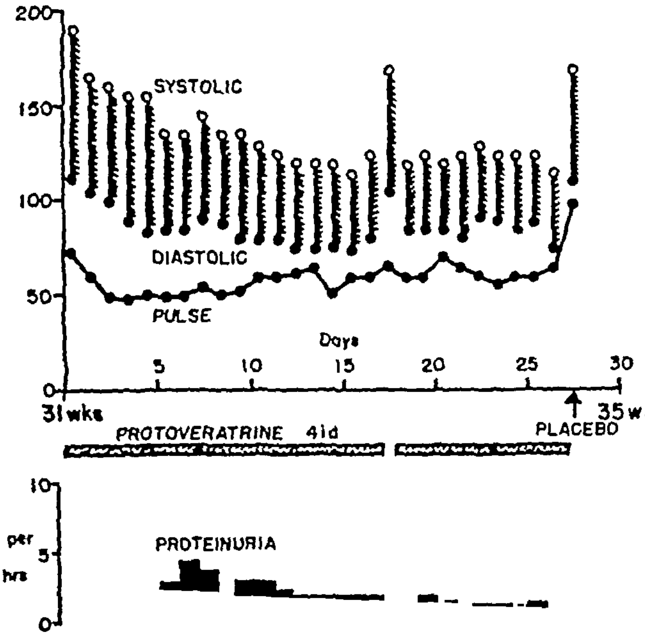

Fig 3 (case 3) —Daily average of hourly blood pressure readings and pulse rates The decrease in proteinuria is noteworthy, as is the rise in blood [illegible] at the time of omitting protoveratrine or substituting a placebo

The patient was admitted to the hospital the same day, and the blood pressure was 210/140 mm Hg, with a pulse of 80 to 90 per minute The patient seemed slightly lethargic but was able to answer questions One small hemorrhage and exudate were noted in each eye, but there was no definite choking of the disks Protoveratrine was then administered intravenously in a dose of 0 12 mg This was followed by an abrupt fall in blood pressure, and in 15 minutes it was 130/80 mm Hg and the heart rate had fallen to 44 per minute This was at 4 45 in the afternoon One-half hour later an infusion of 1,000 cc of glucose in water containing 0 5 mg of protoveratrine was started intravenously This was continued at the rate of from 10 to 40 drops per minute depending upon the pulse rate and blood pressure response, which were taken each 15 minutes by the nurse Blood pressure was maintained within the range of normal or at borderline hypertensive levels for the remainder of the night (fig 4) The patient was slightly nauseated and vomited on one occasion during the night but stated she felt much relaxed

By the following afternoon the amount of protein in the urine was still large, equaling 750 mg per 100 cc Laboratory studies soon after entry indicated a hemoglobin level of 15 gm per 100 cc, nonprotein nitrogen level of 26 mg per 100 cc, total protein level of 6 8 mg per 100 cc, and a hematocrit of 46% The urine contained 4 to 5 white blood cells, 2 to 3 red blood cells, and an occasional cast The patient was given a diet containing about 200 mg of sodium

The day after entry cesarean section was done, and a 2 lb (907 18 gm) fetus was delivered without trouble Later that night, the blood pressure rose to 210/140 mm Hg and an infusion of protoveratrine was again given with a good return of blood pressure to normal levels The blood pressure was held at about 120/80 mm Hg, with a pulse rate of 50 per minute On March 26, four days post partum, oral therapy with protoveratrine was started in dosage of 0 7 mg every eight hours and there was good response, with the blood pressure returning to normal limits for a period of five hours after the oral dose, at which time the blood pressure rose again and the protoveratrine therapy was repeated The vision continued to be a bit blurred in the left eye By March 31 the headaches had completely disappeared, the vision was better and at 5 p m the blood presure was 130/80 mm Hg and the pulse was 66 per minute The following morning at 9 a m, before an intravenous pyelogram, the patient s blood pressure was up again to 200/120 mm Hg and the pulse was 106 per minute At that time, she had not received protoveratrine for 18 hours The pyelogram was normal, and there was good excretion of the phenolsulfonphthalein dye A dose of protoveratrine, 0 8 mg, four times a day, resulted in normal blood pressure readings most of the time except for just before the next dose of protoveratrine, when the readings of blood pressure were higher Reserpine, 0 5 mg twice a day, a 200 mg sodium diet, and protoveratrine, 0 8 mg four times a day, was the discharge regimen

was normal, and there was good excretion of the phenolsulfon-

Two weeks post partum, her blood pressure was found to be controlled while she was taking protoveratrine and reserpine, but, in the course of 12 hours after omitting the protoveratrine, it ranged to about 170/110 mm Hg The urine was free of protein, and the ocular fundi were now clear Two months later the blood pressure was at the upper range of normal, 140-150/90 mm Hg She was still on reserpine therapy, 0 75 mg a day, and protoveratrine had been omitted three weeks before

In this patient, transient hypertension was noted in the first trimester and became persistent in the second trimester Severe hypertension with proteinuria and headache appeared during the eighth month It was thought wise to interrupt the pregnancy because of the severity of the hypertension, which was associated with retinal abnormalities Protoveratrine therapy was useful, both intravenous and oral, in controlling the hypertension before and after delivery In retrospect, the use of protoveratrine given orally with rigid sodium restriction might have been advisable as soon as sustained hypertension was established

Comment

The etiology of the hypertension associated with pregnancy remains obscure. The hypertension itself, however, seems indistinguishable from the hypertension seen in the various medical conditions that are not associated with pregnancy. The hypertension may be mild, moderate, or severe, and in the severe form it is similar to the severe type of disease seen in hypertensive vascular disease. The severe form usually disappears rather promptly after the interruption of pregnancy, in the course of a few days or weeks. We have been unable to detect any objective difference by examination of the blood pressure, the heart, or the ocular fundi to distinguish the hypertension associated with pregnancy from the usual hypertension not associated with pregnancy.

The decrease in the hypertension associated with pregnancy over a 10-year period in this hospital is heartening. The most likely explanation for this decrease in incidence is thought to be improved prenatal care, especially the dietary restriction of sodium during pregnancy, which has become so much more effective in the last 10 years. Other possibilities to account for this decrease, such as a change in the criteria of diagnosis or a change in the policy of referral of patients with preeclampsia to this hospital during a war period, have been considered but thought to be unlikely explanations for the observed drop in incidence of hypertension associated with pregnancy. The significant decrease in the incidence of hypertension of pregnancy in this study illustrates the necessity for a control group being observed concurrently with the treated group in the evaluation of any treatment of hypertensive vascular disease.

Hypertension of all types frequently responds to simple measures such as bed rest and sodium restriction, and the hypertension of pregnancy is no exception. When edema is great, a 5 to 8 lb (2.3 to 3.6 kg.) weight loss in 24 hours is occasionally observed by simply placing the patient on a regimen of complete bed rest without additional therapy. This again emphasizes the necessity of caution in evaluating the various forms of therapy recommended in this disease.

There are times, however, when it is desirable to give drugs that will act promptly to reduce the blood pressure and decrease the pulse rate. Protoveratrine is a suitable drug for this type of problem, since it can be given intravenously and the effect obtained within 15 minutes. The drug can then be given over a period of hours by infusion to control blood pressure and pulse rate, and this allows time for a decision about the obstetric needs of the patient. We prefer to give the drug by infusion under these circumstances, since one can regulate the administration more effectively by infusion than by subcutaneous or intramuscular injection. It is noteworthy that, after receiving the drug by intravenous injection for severe hypertension, the patient frequently describes a relaxed feeling and shows a tendency to sleep. Reducing the blood pressure[2] or pulse rate[3] has been known for many years to decrease the incidence of convulsions if not to prevent them from occurring in toxemia of pregnancy.

It may be necessary to administer a drug for days or weeks for the control of hypertension associated with pregnancy, and protoveratrine can usually be given effectively by mouth if one gives careful attention to the regulation of the individual dosage of the drug. The drug can be given two to four times a day in order to obtain the desired effect upon the blood pressure without the undesirable effect of nausea or vomiting. Vomiting is understandably objectionable to the patient when it occurs but should not necessarily be an indication for discontinuing administration of the drug but merely for more careful regulation of the dosage. The vomiting does provide a safety factor, since vomiting begins in sufficient time to prevent serious overdosage. We found no serious sequelae to occur from protoveratrine administered by mouth to one patient who received 50 mg. by mouth, or 75 times the prescribed dose.

The dose in general ranged from 0.5 to 1.5 mg. every six to eight hours, or three or four times a day. The dose is increased by 0.1 or 0.2 mg. per dose or per day, depending upon the urgency for a hypotensive effect. The method of trial and error, therefore, is the only means by which one can arrive at a suitable oral dosage, and this is best done in the hospital. The amount of the individual dose for the different doses during the day may vary by 0.1 to 0.5 mg.

Protoveratrine itself has been known for 60 years, and its administration is a modification of the use of Veratrum, which is an old treatment of toxemia of pregnancy that was used almost 100 years ago to control puerperal convulsions. The following excerpt is taken from an article by Baker[4] published in the *Southern Medical and Surgical Journal* of 1859.

> I have had but one opportunity to test its powers in puerperal convulsions, from the fact that I have met but one case occurring after delivery had been accomplished and I have always withstood the temptation to administer it before in consequence of a strong belief if not certain conviction that its action would arrest uterine contraction.
>
> About two months ago I was called with my friend, Dr Terry, to see a woman suffering with puerperal convulsions. We found labor advancing and though the convulsions were severe and frequent, we determined to leave its accomplishment to nature and to endeavor in the meantime to check or control the convulsions by the inhalation of chloroform there being certain symptoms which seemed to contra indicate venesection. Dr Terry having been called away I remained to watch the case and administer the chloroform but as the labor made slow progress and the convulsions increased in frequency and severity I bled the woman copiously and sent for Dr Terry to return and bring instruments. He soon came and the woman was delivered by means of forceps of a dead child weighing eleven and a half pounds. I remained with the case an hour, when being called out of town, I left the lady quiet and comfortable. Upon my return four or five hours later, I found her in a most violent convulsion which was reported to be the seventh since delivery. I immediately gave her fifteen drops of Veratrum

Viride and directed that she should take ten more in two hours, after which the intervals should be prolonged to three or four hours according to circumstances There occurred no more convulsions and the woman recovered perfectly She was not even nauseated although the medicine was given at regular intervals during the whole night

Veratrum viride was the first drug found in the literature to be used to lower the blood pressure in man It was used by Mangiagalli[2] of Italy in 1908, who measured the blood pressure before and after its administration He described an extensive experience with the use of this "North American application" to control puerperal convulsions and the associated hypertension The level of the blood pressure was used as an important guide to the dosage of the drug, although the rate and the character of the pulse were also considered helpful Veratrum, therefore, occupies a time-honored place in the treatment of the hypertension of pregnancy

At the Boston Lying-In Hospital, Veratrum was used in association with magnesium sulfate in the treatment of eclampsia and preeclampsia by Irving[5] 10 years ago Magnesium sulfate may be helpful as a central nervous system depressant and, therefore, useful as an anticonvulsant when used alone[6] or with pentobarbital[7] in either toxemia of pregnancy or acute glomerulonephritis Finnerty and Fuchs[7] have compared intravenously given Veratrum with a combination of obarbital and magnesium sulfate in the treatment f convulsive toxemia and found it more effective olling diastolic blood pressure with fewer seri complications to the mother and fetus Protoveratrine does effectively lower the blood pressure and pulse rate in both toxemia of pregnancy and acute glomerulonephritis

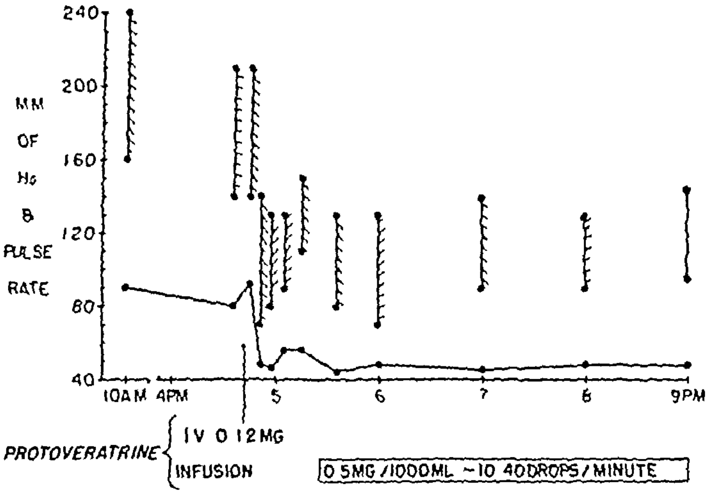

Fig 4 (case 4) —Change in blood pressure and pulse rate after protoveratrine by intravenous injection and by infusion The rate of infusion was governed by the level of blood pressure and the pulse rate

The renal function is not impaired by the use of Veratrum in the hypertension associated with pregnancy, although the urinary output may be temporarily decreased after an abrupt fall in blood pressure from Veratrum or protoveratrine Serious oliguria or anuria have not occurred in the patients observed in this study, and, moreover, the anatomic lesions in the kidneys of patients dying of toxemia without shock or other complications are inconstant and inconspicuous[8] Whatever changes occur are restricted to the glomerulus, while the tubules appear histologically normal

Other drugs and techniques have been used in controlling hypertension associated with pregnancy, but we have had little experience with them Reserpine is a good sedative and lowers the blood pressure in some patients This drug has been used in association with protoveratrine in dosage of 1 0 to 1 5 mg a day and has seemed to have an additive effect in some patients Reserpine also has the advantage of sustained effect and is now being tried in conjunction with sodium restriction for the woman with hypertensive disease who becomes pregnant It is too soon to know what the effect of such medication will be in decreasing the incidence of toxemia or preventing an aggravation of hypertension during pregnancy It has the disadvantage of producing mental depression in at least 5% of the patients who receive it While it can be given intravenously, this drug is not particularly useful for the acute hypertensive problem in regard to lowering of the blood pressure or preventing convulsions but has a beneficial sedative effect[9]

Another drug that has a somewhat prolonged effect is hydralazine[10] This drug has attracted much attention because of its ability to increase renal blood flow at a time when the blood pressure is reduced However, this increase in renal blood flow is not selective and is a manifestation of increased cardiac output as well as a rise in the heart rate[11] Since there is no evidence that the kidney is primarily responsible for the hypertension of pregnancy, there would seem to be no virtue in increasing the renal blood flow by administering hydralazine or by any other means In fact, it would seem more desirable to use a drug that decreases pulse rate as well as blood pressure in the patient with a hypertensive crisis Hydralazine, therefore, is not considered as desirable a drug as protoveratrine in the treatment of severe toxemia or eclampsia The drug in dosage up to 300 mg per day appeared to have a lowering effect upon the blood pressure in the patient with hypertension during the early phase of pregnancy in about half the patients studied by Finnerty[12]

We have had no experience with the autonomic ganglionic depressing agents such as hexamethonium or pentolinium in the treatment of toxemia of pregnancy, and there is some evidence to suggest that such drugs have little effect upon the blood pressure in toxemia of pregnancy[13] The experience by Morris[14] with hexamethonium would indicate that autonomic ganglionic depressing drugs have little place in the treatment of the hypertension associated with pregnancy

While the renal blood flow is often stated to be decreased in patients with toxemia of pregnancy, the values recorded fall within the normal range for the nonpregnant individual The renal blood flow in toxemic patients is, therefore, decreased when compared to the high value that is known to accompany normal pregnancy Numerous studies have demonstrated that the glomerular filtration rate is diminished somewhat in toxemia of pregnancy, but it is doubtful whether this modest deviation in renal function influences the prognosis Whatever the cause of death in toxemia of pregnancy may be, it is not directly the result of acute renal failure

Regardless of the value of these hypotensive drugs caution must be exercised in evaluating the improvement in the patient's condition While the blood pressure may reveal satisfactory response and become controllable, and the patient immeasurably improved symptomatically, it must be realized that the disease is only in abeyance Fetal survival, moreover, is not necessarily enhanced by this clinical improvement Consequently, while drugs are useful in the over-all management of the hypertension of pregnancy, treatment for each patient must be carefully individualized and termination of the pregnancy performed at the propitious moment most likely to assure fetal survival and least likely to result in injury to the mother

Conclusions

The incidence of hypertension associated with pregnancy decreased by a significant degree over a 10-year period at the Boston Lying-In Hospital The decrease was thought to be due to more careful restriction of dietary sodium in recent years and general improvement in prenatal care The hypertension associated with pregnancy responds well to bed rest, sodium restriction, and intravenous or oral administration of protoveratrine Twenty-one patients have been observed in whom protoveratrine has been helpful in reducing or controlling the hypertension associated with pregnancy Protoveratrine is considered an improvement of the time-honored use of Veratrum in the treatment of toxemia of pregnancy

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Drs Gordon Gauld Weston Sewall William Mulligan Thomas Goethals and John Jewett gave permission to include their cases in this study

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Solution for parenteral use and tablets of protoveratrine were supplied by Pitman Moore Company under the trade name of Veralba Protoveratrine maleate was supplied by Eli Lilly & Company under the trade name of Provell maleate

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Genetics in the Medical Education—Genetics is the youngest of the biological sciences, yet physicians have been observing and recording the familial aggregation of certain diseases for centuries The family physician of the 19th century often made surprisingly accurate predictions and early diagnoses based largely on knowledge of the family history Observations of this sort soon found their way into medical school textbooks and lectures As evidence of the accuracy of some of these empiric observations it is of interest to note that the early editions of Sir William Osler's textbook of internal medicine published 10 years before the rediscovery of Mendel's work carried an accurate description of the transmission of a sex-linked recessive trait (Osler, 1894) In his discussion of hemophilia Osler pointed out that all daughters of a hemophiliac male are asymptomatic carriers of the condition and also remarked on the frequent appearance of new cases in previously healthy families which we now refer to as mutations It was more than two decades before the cytologic basis for these empiric clinical observations became firmly established It is also of historic interest that the applicability of Mendel's rediscovered work to man was promptly recognized by certain workers and that Garrod (1902) was able to show that alcaptonuria is due to an autosomal recessive gene as early as 1902 In the early days several workers attempted to apply the lessons learned from Drosophila and other laboratory animals to human problems but knowledge accumulated slowly during the first quarter of the current century It is well known that some of the studies of this period were poorly done and incorrectly interpreted and did the cause of human genetics far more harm than good The history of the development of research and the applications of genetic knowledge to medical problems was brilliantly reviewed by Snyder (1951) in his Presidential address to this Society as part of the Golden Jubilee Celebration of Genetics in 1950 The medical curriculum changes only slowly and there was little if any organized instruction in genetics in American schools of medicine during the first three decades of this century In the early 1930's, serious proposals that genetics should be regularly taught as a basic science and as a clinical subject were made by Madge Macklin (1932) Laurence Snyder (1933) and William Allan (1936) These three should be regarded as the pioneers and prime movers in introducing genetics as a science to the schools of medicine.—C N Herndon, Genetics in the Medical School Curriculum *The American Journal of Human Genetics* March 1956

INDUCED HYPOTENSION AS AN AID TO INTRACRANIAL SURGERY

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Induced hypotension is the deliberate reduction of the systemic blood pressure during operations, that has as its purpose more readily controlled hemorrhage and a decrease in loss of blood The method has been employed in a variety of surgical operations but appears to be most appropriately used in intracranial operations, in which the control of hemorrhage from both large and small vessels may be troublesome and time consuming In an earlier report[1] we concluded, from experience with hypotension produced by trimethaphan (Arfonad) camphorsulfonate in 101 craniotomies, that the method was safe and possessed distinct advantages The purpose of this report is to review the merits of hypotension induced with trimethaphan in a larger number of major craniotomies and to make a comparison with a similar series of intracranial operations without use of induced hypotension to determine any differences in the need for replacement of whole blood and in the time required for operations, as well as to compare the morbidity and mortality in the two groups

Method

In two and one-half years ending in August, 1955, 295 major craniotomies were performed at the New York Hospital with use of ether anesthesia and hypotension induced with trimethaphan The operations are grouped in eight categories as follows operations for (1) gliomas, (2) metastatic tumors, (3) pituitary tumors, including craniopharyngiomas, (4) meningiomas, (5) schwannomas, and (6) vascular lesions, including saccular aneurysms and arteriovenous malformation, and (7) hypophysectomy for treatment of advanced cancer and (8) miscellaneous operations, including those for brain abscess, for excision of cortical scar, and for removal of epidural, subdural, and subcortical hematoma, and ventriculostomy, intracranial exploration, orbital decompression for exophthalmos, intracranial nerve section, and repair of cerebrospinal fluid fistula

For comparison of each of these categories, with the exception of the group in which hypophysectomy was done, an approximately equal number of similar cases was collected from the operative list during the several years immediately antedating the use of induced hypotension There are 201 cases in the control group, the discrepancy in numbers between the two series being due to the relatively few hypophysectomies (6 cases) that were performed without induced hypotension About 75% of all the operations were performed by one surgeon (B S R), and in nearly all the cases in which hypotension was employed one anesthesiologist (V D B M) was in charge

• *Hypotension induced with trimethaphan has been used in connection with ether anesthesia in a series of 295 craniotomies This series was compared with another of 201 cases in which hypotension was not induced Blood pressures below 60 mm Hg were associated with higher morbidity and mortality rates ascribed to cerebral damage due to stagnant anoxia Prolongation of hypotension at levels of 70 to 100 mm Hg did not increase morbidity or mortality It probably facilitated operative procedure by decreasing the bleeding from small vessels and may be advisable when massive bleeding is anticipated In the two series, however, operating times were practically equal, as were the percentages of patients requiring transfusions of 2,000 cc or more of blood*

Results

Table 1 summarizes the time required for operations performed with and without induced hypotension In the two largest operative groups, operations for gliomas and miscellaneous operations, the average time appears to be a little less when hypotension was employed, but the difference is not significant, and the average time of duration for all cases in each series is exactly the same

The figure illustrates the amount of blood replaced on the day of operation Hypophysectomies have been excluded because of the small number of control cases, and operations on children have been omitted because any differences in the relatively small amounts of blood replaced in children would not have statistical significance The graph shows that it was unnecessary to replace blood in only 10% of the control cases, whereas in one-third (34%) of the cases in which hypotension was induced replacement of blood was not required There was about equal need for replacement of a moderate amount of blood (500 cc) in each series (35 and 39% respectively) Furthermore, there was an equal percentage of patients in both series requiring 2,000 cc or more of whole blood, demonstrating that induced hypotension is no guar-

Table 1 —*Duration of Surgery in Craniotomies in Control Patients and Those in Whom Hypotension Was Induced*

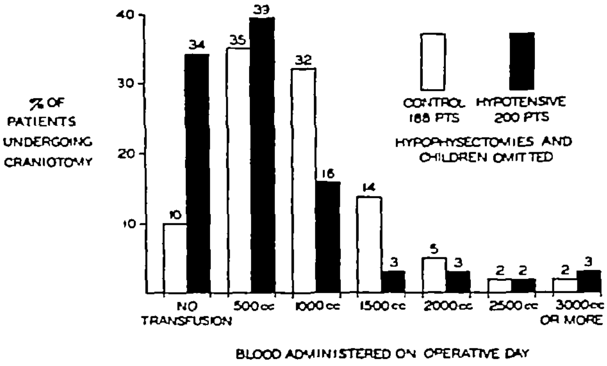
Condition or Operation	Control			Hypertension Induced		
	Operations, No	Duration of Surgery, Hr		Operations No	Duration of Surgery Hr	
		Av	Range		Av	Range
Glioma	71	3¼	1¼-6½	68	3	1¾-4¾
Miscellaneous conditions	32	2¾	1¼-4½	42	2½	1½-7
Metastatic malignancy	32	3	1½-6	30	3	1¼-4¼
Pituitary tumor	21	2¾	2 -4	24	2½	1½-4
Meningioma	18	3¾	2 -6	15	3¾	2½ [illegible]
Schwannoma	11	4¾	4 -6¼	9	5	3½-7¾
Vascular lesion	10	3	2 -4½	21	3¼	1¾-6
Hypophysectomy	6	2½	2½-3½	86	2½	2 3½
Total or av	201	3¼	1¼-6½	295	3¼	1¼ 7¾

From the Department of Surgery (Anesthesiology and Neurosurgery) the New York Hospital and Cornell University Medical College

Read at the Ninth Clinical Meeting of the American Medical Association Boston Dec 1, 1955 antee against an occasional instance of major loss of blood Table 2 contains the details of blood replacement in each group of the two series arranged for easy comparison The figure was compiled from this table The table shows that in all categories except the operations for meningioma there is a trend toward administration of less blood in the cases in which hypotension was induced In the cases of meningioma the amount of blood replaced was about the same whether or not hypotension was used

Table 3 shows the periods of stay in the hospital and the morbidity and mortality after operation The average postoperative stay in the hospital does not seem to have been significantly influenced by employing hypotension, with the exception of cases of pituitary tumor, in which the stay was reduced by half, this is perhaps in keeping with the impression that the operations on 'pituitary cases" go more smoothly than those in any other single group when hypotension is induced

Also in table 3 is a tabulation of the important postoperative complications The neurosurgical complications include convulsions, alteration in state of consciousness, and palsies of various types that did not exist prior to operation and were not anticipated as a result of operation in a localized area of the brain They also include instances of postoperative swelling of the brain and of intracranial hemorrhage, which are more important to consider when evaluating the effect of induced hypotension In all there were 12 patients in whom reopening of the wound was required for evacuation of hematomas, decompression of the brain, or both, but such cases were about equally distributed between the two series Even though hypotension was maintained through the period of closure of the wound in most cases, the survey does not indicate that the incidence of postoperative intracranial hemorrhage or edema was thereby increased Complications other than neurosurgical include pneumonia, atelectasis of the lung, thromboembolism, thrombophlebitis, cardiac irregularity, and fever of unknown origin Table 3 shows that the total number of complications in this category was relatively small and that there was no significant difference in incidence in the two series



Blood replacement in craniotomies in control patients and those in whom hypotension was induced

The number of postoperative deaths (table 3) is relatively smaller in most groups in the series in which hypotension was used The many factors to be considered do not permit the conclusion that hypotension during operation can be given full credit, but at least it can be said that mortality is not increased by employing induced hypotension The mortality in the cases of schwannoma is distressingly high and not different in the two series A comment is in order regarding these cases, because a change in policy is required as a result of this experience Radical extirpation of the tumor in all but a few of the cases was attempted regardless of age and condition of the patient, four of the patients who died were 60 years of age or older Less radical operations now appear to be indicated in some patients in order to reduce the risk Though it was felt that hypotension facilitated the mechanics of removing the tumor, it did not lessen the danger

TABLE 4—*Relation of Blood Pressure During Operation to Morbidity and Mortality in Series in Which Hypotension Was Used*

Minimal Systolic Blood Pressure Mm Hg	Patients No	Deaths	Neurosurgical Complications
60 or over	126	11	11
50	36	3	1
40	16	2	4
Unobtainable	27	2	3
Total	205	18	19

Some of the other postoperative deaths deserve mention In the group undergoing miscellaneous operations, two of the patients receiving induced hypotension died One patient proved to have widespread metastasis of melanoma, with occlusion of mediastinal vessels as an immediate cause of death The other died of the effects of Taenia solium in the basilar subarachnoid space after an unsuccessful exploratory operation One of the deaths in the group undergoing operations for meningiomas was in a patient who had induced hypotension during removal of a large bifrontal tumor Her postoperative course was satisfactory till the sixth day, when a myocardial infarction occurred, death followed in 24 hours The routine electrocardiogram taken the first day after operation had been normal

TABLE 5—*Relation of Prolongation of Hypotension to Morbidity and Mortality*

Prolongation of Hypotension Beyond Surgery	Patients No	Deaths	Complications
Under ¼ hr	69	3	3
¼ to 1 hr	20	3	1
1¼ hr or more	7	1	
Total	96	7	4

In the group undergoing operation for vascular lesions, including saccular aneurysms and arteriovenous malformations, there was one death in the control series and one in a patient in whom hypotension was induced The former died of a pulmonary embolism on the 15th postoperative day, the latter died on the 3rd day as a result of inadvertent occlusion of both anterior cerebral arteries during excision of an aneurysm of the anterior communicating artery In the group undergoing hypophysectomy, nearly all the patients had advanced metastatic carcinoma and many were poor risks for operation On the basis of careful analysis of the cases it is believed that the mortality attributable directly to the operation is 3 to 5% Additional deaths after operation are due to the advanced state of the malignant disease unbenefited by hypophysectomy [2]

Table 4 lists the lowest systolic blood pressure obtained by auscultation during the operations in which hypotension was induced and also the neurosurgical complications and the deaths that occurred in the first week after operation There were 69 patients who had auscultatory systolic pressures of 50 mm Hg or less, and they comprise 24% of the series in which hypotension was used However, 39% of the postoperative deaths and 41% of the neurosurgical complications were in this group of 69 patients Although these cases are few, they do support the reasonable impression that there is some risk to lowering the systolic blood pressure below 60 mm Hg

Table 5 pertains to the occurrence of prolongation of hypotension beyond the termination of the operation and cessation of administration of trimethaphan and its relation to the incidence of morbidity and mortality In 96, or 32%, of the patients blood pressure did not return to normal immediately, though in the majority it did so within 15 minutes One-third of the deaths and one-fifth of the neurosurgical complications in the series in which hypotension was used were in patients with prolongation of low blood pressure Usually, however, the prolonged hypotension was in the realm of safe levels between 70 and 100 mm Hg, and it was rarely necessary or desirable to speed the return to preoperative levels of pressure by the use of vasopressor drugs Furthermore, there seems to be no direct correlation in most cases between any prolongation of recovery of normal blood pressure and later complications

TABLE 2—*Blood Replacement in Craniotomies in Control Patients and Those in Whom Hypotension Was Induced*

Condition or Operation	Patients No	Frequency of Patients Receiving: No Transfusion	500 Cc	1,000 Cc	1,500 Cc	2,000 Cc	2,500 Cc	3,000 Cc or More
Glioma								
Control	71	2	19	34	13	1	1	1(3 000)
Hypotension	63	12	32	12	1	2	2	2(3,500)
Miscellaneous conditions								
Control	30	8	17	4	1			
Hypotension	40	25	12	2			1	
Metastatic malignancy								
Control	32	3	10	8	7	3	1	
Hypotension	30	3	18	7	1	1		
Pituitary tumor								
Control	16	2	9	4	1		1	
Hypotension	22	9	12					1(3 000)
Meningioma								
Control	18	1(100cc)	3	6	2	3	1	1(3,500)
Hypotension	15		3	5	3	2	1	1(6,000)
Schwannoma								
Control	11		3	4	2	2		
Hypotension	9	4		3		1		1(3,500)
Vascular lesion								
Control	10	2	5	1		1	1	
Hypotension	21	9	5	4				1(3,000) 1(5,500)
Hypophysectomy								
Control	6	4	1	1				
Hypotension	86	43	33	7	1	2		

TABLE 3—*Hospital Stay, Morbidity, and Mortality After Craniotomy in Control Patients and Those in Whom Hypotension Was Induced*

Condition or Operation	Patients, No	Hospital Stay, Days: Av	Hospital Stay, Days: Range	Complications: Neurosurgical	Complications: Other	Deaths: 1st Wk	Deaths: 2nd Wk	Deaths: 3rd or 4th Wk	Death Rate 1st Postoperative Mo, %
Glioma									
Control	71	25	10 — 65	5		8	2		14
Hypotension	68	25	6 —108	3	2	7		1	11
Miscellaneous conditions									
Control	32	21	8 —138	1	1	1		2	9
Hypotension	42	19	8 — 51	2		2			Neither related
Metastatic malignancy									
Control	32	22	8 — 90	2	1	3		4	22
Hypotension	30	17	8 — 35	1	1			2	5
Pituitary tumor									
Control	21	22	9 — 92	1	1			1	5
Hypotension	24	11	7 — 20		1			1	4
Meningioma									
Control	18	19	8 — 36	1	1	1	1	1	16
Hypotension	15	30	8 —119	3	1	2			13
Schwannoma									
Control	11	30	18 — 57	1		3			27
Hypotension	9	24	16 — 46		1	3			33
Vascular lesion									
Control	10	20	11 — 33				1		Not related
Hypotension	21	22	8 — 79	6		1			5
Hypophysectomy									
Control	6					1			16
Hypotension	86			5		3	3	3	10

Comment

Induced hypotension has not shortened the average operating time for intracranial operations, nor has it insured against an occasional lengthy operation, though in over 80% of the cases in which it was used hypotension was maintained from the start of the scalp incision till the end of closure of the incision Replacement of blood in the average case is required less often and in smaller amounts than when hypotension is not employed, yet in the presence of induced hypotension there is greater necessity for undelayed replacement of excessive blood loss than pertains in other cases Also, the use of induced hypotension does not protect against the occasional instance of excessive loss of blood and the need for large transfusions

Induced hypotension does not materially affect venous bleeding, nor does it reduce bleeding from arteries larger than arterioles Therefore, in approximately 60% of the operations in the series in which hypotension was used the operating table was tilted in a reverse Trendelenburg position of 15 to 25 degrees' elevation to facilitate venous drainage and to decrease the effective mean arterial pressure at the operative site The addition of tilting the table to elevate the head could usually be relied on to accomplish the desired degree of hypotension

The advantage of induced hypotension is not in lowering the operating time or reducing the need for blood replacement but in facilitating the operative procedure It decreases the bleeding from small vessels during making of the scalp incision, removal of the bone plate, and closure of the wound It is believed to cause some reduction in the size of the brain, making it easier to retract and possibly minimizing trauma Oozing from small vessels on raw surfaces of the brain is diminished An additional advantage is that, in the case of more serious bleeding, profound hypotension and extreme head-up position are immediately available Use of these measures is attended by some risk of anoxia of the brain, because hypotension itself does not decrease the oxygen requirement of the brain If it can be anticipated that serious bleeding may occur, it is probably desirable to employ hypothermia (reduction of body temperature), since this reduces the oxygen requirement of the brain In a few operations for excision of large arteriovenous malformations, a combination of hypothermia and induced hypotension has served admirably to meet the risks entailed

Experience with the routine use of hypotension induced with trimethaphan has demonstrated its relative safety and practicability, and tables 3 and 4 show that morbidity need not be increased with its use There is need to avoid overdosage of the agent, although, because of its rapid excretion, there is a good margin of safety Sustained systolic pressure below 60 mm Hg is to be avoided and can be if attention is given to establishing the individual patient's response to the initial dosage of trimethaphan and to maintaining a horizontal position of the operating table if necessary

Respiratory irregularity or apnea during ether anesthesia and hypotension induced by trimethaphan has been found to be a sign of intolerance to the technique When apnea has occurred under these circumstances, ventilation of the lungs by means of intermittent positive pressure with endotracheally given oxygen, replacement of blood loss and horizontal positioning of the patient have been adequate until spontaneous respiration has been resumed, after which it usually has been possible to resume induced hypotension safely with more limited doses of trimethaphan

The slow return of the blood pressure to normal levels after administration of trimethaphan was discontinued occurred in a small number of cases It has seemed better from the standpoint of allowing spontaneous physiological adjustments to occur not to resort to vasopressor drugs, and in these cases there were no complications directly attributable to the slow return of the blood pressure to normal levels

Summary and Conclusions

Induced hypotension has been utilized in 295 major craniotomies at the New York Hospital The surgical diagnoses were grouped in eight categories For each of these categories an equal number of similar cases was collected from the operative list during the several years antedating the use of induced hypotension These two series were compared It was found that induced hypotension did not decrease operating time Blood replacement in the series in which hypotension was used was in general 500 cc less than in the control series, though an equal percentage of patients in both series required 2,000 cc or more of whole blood, demonstrating that induced hypotension is no guarantee against an occasional instance of major loss of blood Duration of postoperative hospital stay, morbidity, and mortality were essentially the same in the two series, although the experience in the series in which hypotension was used was slightly more favorable In this series an auscultatory blood pressure below 60 mm Hg was associated with a higher incidence of morbidity and mortality than when the blood pressure was maintained above that level However, mere prolongation of hypotension at levels of 70 to 100 mm Hg did not increase morbidity and mortality

The main advantages of induced hypotension are (1) facilitation of the operative procedure by decreasing bleeding from small vessels and (2) ready availability of brief profound hypotension to assist in the control of massive bleeding However, profound hypotension may produce cerebral damage due to stagnant anoxia Should massive bleeding be anticipated, hypothermia may be a preferable adjunct It is advisable to maintain a spontaneous respiratory pattern in the patient under ether anesthesia in whom hypotension has been induced with trimethaphan (Arfonad) camphorsulfonate

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COAGULATION DEFECTS IN SEVERE INTRAPARTUM AND POSTPARTUM HEMORRHAGE

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• The coagulability of the blood becomes defective in certain obstetric complications, especially in the severe forms of premature separation and after fetal death in utero. The first case here described involved severe premature separation of the placenta with intrauterine fetal death, the patient was delivered by abdominal hysterotomy and recovered after several transfusions and the intravenous administration of fibrinogen. In the second case there was spontaneous delivery of a macerated fetus, but the patient had persistent bleeding with symptoms of shock and likewise required whole blood and fibrinogen.

Obstetric patients are able generally to withstand moderate losses of blood without shock, consequently, when shock does appear, it may mean that the patient is nearly exsanguinated. Detection and treatment of the syndrome of hypofibrinogenemia may be of crucial importance in such patients. If fetal death occurs, the mother should have a weekly clot-observation test. The clotting mechanism should be corrected before any obstetric procedure is completed, and this is readily accomplished by transfusion and fibrinogen.

In the past 25 years a creditable reduction of maternal mortality has been achieved, but, despite this improvement, deaths from obstetric hemorrhage have not decreased proportionately. Moreover, blood loss is a major factor in maternal deaths that are assigned to causes other than hemorrhage. In addition, renal and pituitary damage are sometimes serious sequelae in the pregnant patient who has suffered hemorrhagic shock. Being relatively young, healthy individuals, obstetric patients may adjust to moderate amounts of blood loss without exhibiting evidence of shock. The ability of the obstetric patient to withstand moderate blood loss without shock makes this form of hemorrhage the more dangerous, for when shock appears the patient may be nearly exsanguinated. Under certain circumstances blood transfusion alone fails to stabilize the patient's condition. In these cases the hemorrhagic manifestations may be correlated with an upset in the blood clotting mechanism. This phenomenon has been observed in long-standing death of the fetus in utero, the severe form of abruptio placentae, and as a secondary effect of amniotic fluid embolism.

On the basis of present evidence, the clotting defect appears to be mainly due to a reduction in the plasma fibrinogen concentration. While other factors of blood clotting may be decreased, especially platelets, Ac-globulin, and prothrombin activity, the reduction does not reach a hemorrhagic level. In the rare case, no fibrinogen may be detected in the maternal blood, but in the majority of instances the value is somewhat less than 100 mg. per 100 ml. A fibrinogen concentration below 150 mg. per 100 ml. in the pregnant patient is now generally regarded as abnormal. We initially referred to this condition as an afibrinogenemia. Others have suggested the term hypofibrinogenemia, and undoubtedly this is a more appropriate and descriptive term.

Etiology

Clinicians for many years have remarked that the shed blood on occasion fails to clot in intrapartum and postpartum hemorrhage. Dieckmann, in 1937, recorded his observation of a low fibrinogen concentration in some cases of abruptio placentae. A decade later, Moloney and associates administered fibrinogen to a patient with an acquired afibrinogenemia associated with premature separation of the placenta.[1] A circulating fibrinolysin was demonstrated in the patient's blood during the hemorrhagic episode. In 1950, these observations were verified and it was demonstrated that hypofibrinogenemia developed in only the more severe form of abruptio placentae.[2] In addition, two other obstetric complications, longstanding fetal death in utero and amniotic fluid embolism, which may occasionally result in hypofibrinogenemia, were recognized and described.[3]

Several theories regarding the etiology have been advanced. It has been postulated that thromboplastin-like substance arising from within the uterus gains access to the maternal circulation and produces intravascular clotting with consumption of fibrinogen.[4] On the basis of animal experimentation, placental trauma was shown to produce fibrin emboli, and thromboplastin of placental origin was considered to be the chief activator of this process.[5] We have been impressed by the presence of fibrinolysin in the blood of patients with hypofibrinogenemia, but others have had little success in demonstrating this fibrinolytic activity.[6] If we assume that lytic activity is consistently associated with hypofibrinogenemia in these cases, we may inquire into its significance. From our observations, it does not appear to be identical with the postmortem fibrinolysin reported by Mole,[7] for the latter substance dissolves fibrin only. Evidence gained in our laboratory indicates the lytic factor in patients with hypofibrinogenemia is active against both fibrinogen and fibrin. Whether this substance is liberated directly from the uterus, or its precursor, plasminogen, is activated by a factor released from the uterus, or whether it is an effect of intravascular coagulation re-

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mains an open question It has been shown that plasminogen activated by streptokinase will markedly depress the fibrinogen concentration in vivo[8] On occasion a patient is seen who continues to ooze vaginally for two to four hours after delivery, despite the fact that the plasma fibrinogen concentration has been restored to normal or to extremely high levels During this period of concern, blood samples assayed in our laboratory have shown a high degree of fibrinolytic activity, offering further evidence that the latter may be important in the causation of the coagulation defect Whatever may be the etiology of hypofibrinogenemia, the role played by fibrinolytic activity with respect to the integrity of clot formation at the placental site cannot be dismissed

Diagnosis

The severe form of premature separation of the placenta accounts for the majority of instances in which a coagulation defect is observed The condition has never been seen in the milder forms of abruptio and is restricted to patients who present a rather characteristic picture This may be exemplified by a patient in the latter weeks of pregnancy who is seized with moderate to severe abdominal pain, usually accompanied by vaginal bleeding, and who enters the hospital in some degree of shock Physical examination reveals a spastic, tender uterus indicative of extensive concealed hemorrhage Fetal heart sounds are frequently absent or weak and irregular If the uterus could be observed, it would present a mottled appearance due to formation of hematomas beneath the serosa (Couvelaire uterus) There is often little or no urine in the bladder, and what is present may contain protein and formed elements The degree of shock seems out of proportion to the estimated amount of external bleeding Hypofibrinogenemia has been detected in one-third to one-half of the patients with this clinical picture While the mortality from premature separation of the placenta resides in this severe group, fortunately 90% of patients with abruptio placentae have the mild form[9]

A coagulation defect associated with fetal death in utero is oftentimes heralded by the appearance of ecchymoses and bleeding from the mucous membranes For some unexplained reason, the condition is rarely encountered prior to the 20th week of pregnancy It has been seen only in cases where the dead fetus has remained in utero for more than five weeks Hypofibrinogenemia may develop before the onset of labor, or its appearance may be delayed until the intrapartum period Approximately 75 to 80% of patients with a dead fetus will not develop a clotting deficiency during parturition Most instances are associated with Rh incompatibility, primarily because this is a common cause of fetal death in utero in the interval between the fifth to the eighth month, when the spontaneous onset of labor is least likely

Amniotic fluid embolism, described by Steiner and Lushbaugh, or amniotic fluid infusion,[10] fortunately a rare complication, is being reported with greater frequency It can now be accepted that the sudden appearance of shock and severe respiratory distress during an otherwise normal labor is pathognomonic of this syndrome The factor that seems to be of etiological importance in the development of the condition is a rapid and tumultuous labor which may be precipitated by the overenthusiastic use of pituitary preparations Hemorrhage manifestations may develop providing the patient survives the initial embolic insult In addition to uterine hemorrhage which is attributed to atony there may be generalized bleeding from mucous membranes, indicative of a clotting defect

The clot observation test has proved to be a rapid and practical means for the recognition of the hypofibrinogenemic state[9] This simple test involves the withdrawal of 5 ml of the patient s blood into a clean dry test tube and observing it at frequent intervals for clot formation and stability Normal blood will clot within 8 to 12 minutes, and the clot will remain intact for at least 24 hours In these cases the blood may not clot, or if it does so may undergo partial or complete dissolution within 30 to 60 minutes In the event of the latter finding, hypofibrinogenemia and the likely presence of fibrinolytic activity are indicated This test may be conducted entirely at the bedside, the blood taken for cross matching may serve for the test A more detailed laboratory analysis of the fibrinogen concentration of the patient's plasma is instituted to confirm the diagnosis, utilizing the estimation of tyrosine activity[11] Schneider[12] and Bonsnes and Sweeney[13] have recently published details of shorter methods yielding semiquantitative approximations of fibrinogen concentration

Treatment

The treatment of severe premature separation by choice involves rupture of the membranes and delivery per vaginam Although one is tempted to perform an immediate cesarean section at the time of diagnosis especially if the fetal heart sounds are detected, the initial problem in management is to ascertain and correct the clotting defect and combat shock Blood in amounts sufficient to restore the blood volume should be rapidly administered, while the intravenous infusion of fibrinogen (fraction 1) can be relied upon to raise the fibrinogen concentration to normal levels In the average case the predelivery requirements are 1,500 to 2,000 ml of blood and 4 to 8 gm of fibrinogen

According to this method of management, cesarean section is restricted to cases in which effective labor does not ensue within six to eight hours after amniotomy and before intrauterine infection becomes an added hazard The clotting mechanism has now been restored and operative intervention can be instituted without danger of uncontrolled hemorrhage (case 1) This policy has been questioned on the grounds that any delay in delivering the patient will allow the clotting mechanism to deteriorate further Those who regard immediate cesarean section as the treatment of choice submit as their rationale the fact that hysterectomy can easily be performed if uncontrollable hemorrhage persists after the uterus has been emptied. This method of management does not take cognizance of the fact that upon hospital admission the patient's blood is or is on the verge of becoming, incoagulable. Furthermore bleeding in these severe cases, which in many instances is attributed to uterine atony, is in all probability the result of a defect in the clotting mechanism. Experience, moreover, has shown that the coagulability of the undelivered patient's blood can be restored to normal by the administration of blood and fibrinogen.[9]

The most significant problem in the management of patients with fetal death in utero is whether the pregnancy should be terminated before the possible appearance of a hemorrhagic diathesis. Despite the fact that a prepartum defect may develop, the preferable policy is one of watchful expectancy, for several reasons. The majority of patients with intrauterine fetal death will enter spontaneous labor and will deliver within a few days or weeks after the disappearance of fetal heart sounds. At this early stage of pregnancy induction of labor is an uncertain procedure at best and may lead to complications. Finally, experience has shown that a hemorrhagic diathesis can be controlled by the prepartum and intrapartum administration of fibrinogen (case 2).

After fetal death and until the patient is delivered, she should have a weekly clot-observation test and ideally a determination of the plasma fibrinogen concentration. She should be cautioned to report immediately any bleeding from the reproductive or gastrointestinal tract or into the subcutaneous tissues. Similar to the experience of Pritchard and Ratnoff,[9b] we have not seen any spontaneous correction of the fibrinogen concentration before delivery. Unquestionably, fibrinogen values may decrease prior to the onset of labor, but during the latter period the process may become accentuated. Cesarean section has a place in the treatment of the rare patient in this group in whom there is a recurrence of excessive bleeding after blood and fibrinogen therapy and whose cervix is unfavorable for the induction of labor.

The treatment of amniotic fluid embolism is initially confined to the administration of oxygen and the use of conventional measures to combat shock. Because of the rapidity of the labor, the cervix is frequently found to be fully dilated, and, if feasible, delivery should be performed in an effort to salvage the infant. If the above supportive measures are sufficient to prolong the mother's life, a delayed complication in the form of uncontrolled postpartum hemorrhage should be anticipated. The reproductive tract should be gently explored at the time of delivery for any areas of traumatic injury and such injury thus excluded as a cause of postpartum hemorrhage should it develop. If bleeding does ensue and a defect in the clotting mechanism is demonstrated, the patient with amniotic fluid embolism may survive if treated energetically with transfusions and fibrinogen replacement.

Several reports have appeared indicating that, in contradistinction to the syndrome of hypofibrinogenemia, an acquired hemorrhagic diathesis resembling hemophilia may develop and be recognized late in pregnancy or a few weeks to several months after delivery.[14] The clotting time of normal blood is definitely prolonged upon the addition of the patient's blood, suggesting that the coagulation defect is the result of a circulating anticoagulant. The latter is believed to interfere with antihemophilic globulin or the precursor of thromboplastin and consequently has been referred to as an antithromboplastin. Its appearance suggests an immunologic reaction, for on one occasion the anticoagulant has been demonstrated in the blood of the infant of such a patient.[14b] In the present state of knowledge, the prognosis must be guarded, for the only known treatment consists of multiple transfusions.

Report of Cases

CASE 1.—A 31-year-old woman, gravida 2, para 1, whose expected date of confinement was Sept. 29, 1955, was admitted to the hospital Aug. 20, 1955, as an unregistered emergency patient. She was seen by her physician early in the afternoon on the day of admission because she had complained of lower abdominal pain, associated with dizziness and some vaginal bleeding. According to her physician, the fetal heart tones were absent at the time. The patient was admitted to a community hospital and some three hours later was transferred to the Boston Lying-in Hospital. On admission, the blood pressure was found to be 130/70 mm. Hg, with a pulse of 154 per minute, and the rate continued to rise with a fall in blood pressure. The patient complained of a considerable amount of abdominal pain, and on examination the uterus was found distended to full term, board-like, tense, and tender. No fetal heart tones could be heard. The diagnosis made was of severe premature separation of the placenta with intrauterine fetal death. The patient's blood was cross matched, and blood was taken for fibrinogen determination; the level was subsequently reported to be 62 mg. per 100 ml. A second sample of blood taken prior to parenteral therapy contained 68 mg. per 100 ml. The clot-observation test made on admission showed complete lysis of the clot within one hour. Soon after admission the patient was removed to the operating room and an amniotomy performed. The cervix was found to be 2.5 cm. dilated and 1 cm. in length, with the vertex presenting at the level of the ischial spines. The amniotic fluid was clear. Soon after this procedure blood transfusions and fibrinogen administration were started. During the next four hours the patient received 3,000 ml. of blood and 8 gm. of fibrinogen. The patient continued to lose a moderate amount of blood per vaginam, and an attempt was made to initiate labor by the administration of oxytocin (Pitocin) given by intravenous drip. Effective uterine contractions, however, did not ensue. Because of the absence of effective labor, it was decided some four hours after amniotomy that the patient should be delivered by abdominal hysterotomy. At this time the fibrinogen concentration was 386 mg. per 100 ml. and freshly drawn blood resulted in a firm, stable clot. When the peritoneal cavity was entered, the uterus was found to be large, extending to the xiphoid process. The uterus was entered through a vertical lower segment incision. The placenta was found to be floating free in a vast amount of blood, estimated at 2,000 ml., and the placenta, along with the fetus, was removed. The uterus was a typical Couvelaire type, with large hemorrhagic areas visible over its surface. During the operation the patient received an additional 1,000 ml. of blood. A clot-observation test appeared to be normal in the early hours of the puerperium, but the patient continued to ooze somewhat per vaginam, and consequently she received an additional 1 gm. of fibrinogen. The fibrinogen level 12 hours later was 438 mg. per 100 ml.

Throughout the remainder of the hospital stay the patient did extremely well and had an afebrile convalescence During the critical period of her illness the patient received 4 000 ml of blood and 9 gm of fibrinogen but despite the therapy on discharge from the hospital, her hemoglobin level was only 11 gm per 100 ml It might rightly be questioned that a considerable delay occurred from the onset of symptoms and admission to the hospital until definitive treatment was instituted According to our experience, however, if a clotting defect is destined to develop in this type of case it will appear soon after the beginning of symptoms

CASE 2—The patient was a 28-year-old woman, gravida 2 para 3, whose expected date of confinement was Sept 25 1954 She had had two normal full-term pregnancies in 1950 and 1951 In 1953 a pregnancy ended in the delivery of a stillborn infant with erythroblastosis fetalis Her present pregnancy was complicated by a rising titer of Rh agglutinins and fetal death in utero She was first examined in the outpatient department on April 11, 1954, in the 20th week of her pregnancy She was seen at regular intervals and the fetal heart was heard for the last time on June 28 1954 when the patient reported a marked decrease in fetal activity On July 20 a sample of her blood clotted well but showed fibrinolysin 1+ The fibrinogen concentration was 500 mg per 100 ml The patient reported an episode of diarrhea and rectal bleeding on Aug 3, 1954, and she was admitted immediately to the Boston Lying-in Hospital The plasma fibrinogen concentration on admission was 91 mg per 100 ml and fibrinolysin content was 4+ hemoglobin level 12 8 gm (82%) and hematocrit 40% It was decided not to administer fibrinogen unless the bleeding caused a significant drop in hemoglobin and hematocrit values On Aug 4 the patient entered spontaneous labor and was delivered of a stillborn macerated female fetus weighing 14 oz. (400 gm) Three hours prior to delivery the fibrinogen concentration was 80 mg per 100 ml and fibrinolysin 3+ For two hours after delivery there was a steady loss of blood from the vagina although the uterus was small, firm and well contracted The pulse rose to 120 and blood pressure fell to 60/30 mm Hg The patient was given 2 500 ml of blood and 5 6 gm of fibrinogen over the next four and one half hours and coincidentally the blood pressure began to rise and the pulse fell gradually The next day the plasma fibrinogen concentration was 278 mg per 100 ml and fibrinolysin was 2+ She continued to improve, and on Aug 10 the plasma fibrinogen concentration was 374 mg per 100 ml and fibrinolysin was 1+, and the patient was discharged on the eigth postpartum day Despite the fact that the uterus was well contracted and the fibrinogen levels were restored to normal after delivery this patient continued to ooze in excess During this period considerable fibrinolytic activity was demonstrable in the patient's blood

Conclusions

During recent years it has been determined that a defect in the coagulation mechanism may infrequently develop in late pregnancy and the intrapartum and immediate postpartum period Because of its low incidence in comparison to the number of deliveries, the syndrome of hypofibrinogenemia is sometimes disregarded until the patient is in the terminal stage of hemorrhagic shock The syndrome, if undetected and untreated, may constitute the difference between whether the patient survives or dies from uncontrolled uterine hemorrhage

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The Theory of Stress—A contribution to medical knowledge which may prove to be of a similar heuristic value as the theory of stress introduced by Selye It represents as Selye (1954) himself suggests the negative counterpart, or mirror image, of Pasteur's theory It holds that many diseases have no single cause no specific pathogen, but are largely due to non-specific stress, and to pathogenic situations which result from inappropriate responses to such non-specific stress, in the form of a general adaptation syndrome The apparent cause of illness is often an infection an intoxication, nervous exhaustion or merely old age But actually a breakdown of hormonal-adaptation mechanisms appears to be the most common ultimate cause of death When the organism is subjected to stress—in the form of injury infection emotional trauma excessive cold or exhaustion—an "alarm reaction takes place The pituitary and the adrenals produce an excess of the hormones which combat stress and preserve the welfare of the body For a time this adaptive measure is successful—the organism learns to live with its stress, as it were However, if the stress continues, the mechanisms break down, and the body succumbs to the wreckage produced by these excess hormones originally intended as an emergency defence against a state of stress Selye formulated his theory as a result of experiments with animals but soon he noted that remarkable parallels could be drawn between the post mortem findings in rats subjected to excessive injections of somatotropic hormone (S T H) and desoxycorticosterone (D C A) and findings in human subjects who had died of cardio-vascular, renal and other common fatal disorders Many clinicians throughout the world have noted an alarming increase in the early onset and incidence of disorders such as coronary and cerebral thrombosis rheumatoid arthritis, hypertension diabetes peptic ulceration and other conditions usually associated with chronic worry, overwork, fatigue and the rush of modern industrial cities Selye also noted that it was not always necessary for an actual excess of corticoids to be produced for virtually the same results were obtained by enhancing the effects of comparatively small quantities of corticoids through stressors Chronic malnutrition emotional tension and most comparatively mild stressors act predominantly through this mechanism on man—D R MacCalman M D F R C P Stress in Childhood *The Medical Journal of Australia,* March 3 1956

HABILITATION OF THE CHILD WITH SPINA BIFIDA AND MYELOMENINGOCELE

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• Experience with 45 children with spina bifida and myelomeningocele shows that an active and hopeful approach starting at birth can usually prevent years of nursing care in bed Remarkable degrees of self sufficiency have been achieved in such activities of daily living as dressing, hygiene, eating, and ambulation, despite paraplegia, surface anesthesia in the lower extremities, incontinence, and in some cases intellectual retardation Progressive renal damage can be prevented by conscientious management

Early removal of the myelomeningocele is advised in order to prevent meningitis and the possibility of further disability or death Immediate steps toward habilitation not only prevent physical complications but improve the emotional attitudes of the patient and his family The results have justified the efforts

In discussing the child with spina bifida and myelodysplasia, Jaeger wrote in 1953 " generally speaking, it is a physician's Hippocratic duty to preserve life and prevent suffering, but how can one be sure that he has selected the right course of action when the immediate saving of life may mean life-long suffering?"[1] Jaeger also stated that he knew of no such child with total paralysis of the bladder who survived the first 10 years, nor of any with complete transverse myelitis who reached adolescence We have encountered 45 children with myelomeningoceles and many others with similar disabilities resulting from birth injuries and other acquired disorders of the spinal cord, and our experience has been at wide variance with Jaeger's

Our interest in this problem was aroused by the successful restoration to productive lives of hundreds of paraplegics in the armed forces and in civilian life since World War II The habilitation of a child who is paraplegic as the result of a myelomeningocele is similar He has a prominent advantage in that the cauda equina is usually damaged as well as the spinal cord, resulting in flaccid rather than spastic paraplegia Accordingly the child is spared both the severe uncontrollable spasms and the additional weight of the spastic musculature On the other hand, he has been denied the experience of early normal learning and development He is apt to have the additional handicap of hydrocephalus or other organic brain damage, with resultant intellectual deficits and aberrations in behavior There is danger, with continued growth, of a changing picture as a result of traction on the cauda equina and spinal cord There are differences also in the nature of the bladder disturbance and in the psychosocial aspects The program is modified as indicated by the above differences, and the prognosis should be equally good

The 45 children reported on here are a heterogeneous group, representing all childhood cases seen for habilitation at the Institute of Physical Medicine and Rehabilitation and at Bellevue Hospital All had demonstrable motor deficits, almost all had sensory losses, and all save one had colon and bladder incontinence Our philosophy, objectives, and methods have been previously published[2] The most important features of these cases were tabulated in order to show the special problems of each patient at the time he was first seen, the generalities of treatment, and the functional results The tabulation will be summarized below Unfortunately, however, the table cannot portray the step-by-step process of habilitation, the repeated discharges and readmissions, or the rationales

Summary of Important Features

Three patients were first seen as early as 11 months of age and one as late as the 17th year The average age was 6 years, the median 5½ years The level of the lesion was not tabulated, because there was no correlation of the level of the spina bifida or of the myelomeningocele with the sensory or motor levels, or of the latter with each other Two patients had cervical lesions The majority, as expected, were in the lumbosacral area There were 21 boys and 24 girls In 28 patients the mass had been removed during the first 6 months of life, 5 during the second 6 months, 8 more before the age of 5 years, and one at 7 years of age Of three sacs that were still present when the patients were first seen by us, two were small and intact and were covered by tough skin but the third was friable and leaked periodically It was protected by a cage-like modification of our spinal brace until the child and her parents were prepared for its removal Six patients were seen for less than one month Except for one patient followed for seven and one-half years and another for four and one-half years, none have been with us for more than four years The average has been 21 months, the median 15 months Most of the patients are still under observation on an outpatient basis, with periodic readmissions as necessary for urologic surveys and for the patients to learn new activities for which increasing growth and development have prepared them

Neurological and Psychiatric Features —The range of head circumference in 31 cases was 18 to 27 in (45 7 to 68 6 cm), with a median of 21½ in (54 6 cm) Circumference was not recorded in 14 cases, but it was described as normal in 5 and as enlarged in 5 None of the children had significant further head growth after they came under observation Caudal displacement of brain stem, cerebellum and spinal cord (Arnold-Chiari syndrome) has been suspected at times, but surgical intervention was necessitated by progressive symp-

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Because of space limitations the table has been omitted from THE JOURNAL and will be supplied with the authors' reprints toms in only one child while under our care In that case the cerebellar tonsils and the medulla were found to be displaced as low as the second cervical level, and there was relief of symptoms after decompression On the basis of neurological or psychometric testing, several children were thought to have had brain damage I Q determinations fell below 60 in 5 cases, between 60 and 69 in 2 cases, 70 to 79 in 4 cases, 80 to 119 in 18 cases, and over 119 in 2 cases The average was 85 Three children had verbal I Q's in the average range, with much lower nonverbal ratings Ten children were described in terms that would place them in the average range, but exact quotients were not determined No record was made in one case

Psychiatric reports described 22 children at the time of admission in unfavorable terms alone, such as "anxious," "poorly motivated," "hostile," "disturbed," or "distractible" Thirteen were described only in favorable terms, such as "friendly," "cooperative," or "well motivated" Four were described in mixed terms, and no comment was made concerning six Initial social service reports described seven families in favorable terms only, such as "loving," "objective," "cooperative," or "affectionate" Twenty-two were described in purely unfavorable ways, such as "overprotective," "overindulgent," "uncooperative," "rejecting," "needing improvement," "lacking acceptance of the disability," "neurotic," "alcoholic," "separated," or as having abandoned the child (one or both parents) Four families combined good and poor qualities while reports were not made on 12

General Condition—Most of the patients had had prior treatment in addition to removal of the myelomeningocele, but none had had comprehensive habilitation The prevailing attitude was one of hopelessness Orthopedic operations were performed to correct deformities, but without provisions to prevent recurrences Braces were prescribed in some cases, but were generally inadequate and were seldom used Urologic investigation was seldom carried out Above all, training in performance of the activities of daily living was wanting As a result, few of the children, particularly those with complete lesions, could dress feed, or wash themselves, and those few with wheel chairs had obsolete equipment and were unable to propel them

Five patients had no peripheral somatic sensory loss Thirteen had a partial loss Of these one patient with a cervical lesion had loss of position sense and stereognosis in all extremities but retained awareness of pain and touch One child had loss of touch sensation only in his feet Another had primarily loss of proprioception below the knees and was ataxic No record was made of sensory involvement in two cases The remaining 25 patients had demonstrable levels of loss of sensation, 7 at the 10th thoracic level or above and 18 below this level In only five patients was there a sensation of bladder fulness Decubitus ulcers were a serious problem in six patients moderate in five, and minor in eight Sixteen patients never had decubitus ulcers and 10 charts bore no relevant comment, probably indicating that these children had at most experienced minor skin breakdowns All of those known to have had decubitus ulcers had sensory loss in the area of ulceration, with the one exception of a child with minor skin lesions The average I Q in the "serious" group was 77, as compared to 92 in the "minor" group Those in the "serious" group had been uniformly graded as poor emotionally, and their family attitudes were likewise rated as poor We have always been able to clear the skin of inpatients with simple medical measures

All children in the series had some neuromuscular involvement One patient with a cervical lesion had only incoordination in four extremities The other with a cervical lesion had quadriparesis, with greater involvement on the right side The latter was also ataxic, although no sensory loss was noted perhaps related to associated cerebral anomalies, internal hydrocephalus, or the Arnold-Chiari malformation Eighteen patients had a partial motor loss in their lower extremities, varying from isolated weakness or paralysis in particular muscles to generalized weakness with grades predominantly below functional levels The remaining 25 children had complete paraplegia, 5 of these also had significant weakness of their trunks Two of the 25 had spastic paraplegia, while the remainder had flaccid paralysis Three children had severe motor disturbances of one upper extremity, not directly related to the myelomeningocele Most of the children had disuse weakness of their upper extremities and trunks

At the time they were admitted to our services 31 of the children had deformities of one or both feet, 22 had hip flexion contractures, of whom 5 had lumbar lordosis as a result, 18 had knee flexion contractures, 7 had scoliosis, 6 had tibial torsion, 4 had knock-knees, 4 had a tight quadriceps femoris, one had kyphosis and one had a severe deformity of the chest and spine Many of these deformities had previously been treated with casts or open surgery, but many had recurred because of poor preparation and poor follow-up

In most cases conservative methods were adequate to correct deformities, by manual stretching, bracing, or wedging in plaster casts However, unless the deformity hampered satisfactory function, we were content to prevent further progression We recommended surgery only to facilitate functional performance and only when we were confident that the gains could be retained Thirteen open operations were performed, on our recommendation, on nine patients There were four tenotomies for release of contractures, four foot-stabilization procedures, three rotation osteotomies for severe tibial torsion and two open reductions of dislocated hips one of which was complicated by postoperative osteomyelitis with destruction of the head and neck of the femur Dislocated hips were found in 22 children eight bilaterally, eight on the right side only and six on the left alone Three children were noted to have none while 20 charts bore no pertinent comment Dislocation of the hip is more prominent among this group than among those with acquired paraplegia in our group, and it was noted occasionally where hip musculature was apparently normal Although x-rays were not routinely taken, other anomalies of the spine and pelvis in addition to the spina bifida were noted in some cases

Urologic Features—Colon function has been easily controlled in almost all cases by methods previously described[3] All but one of the patients reported bladder incontinence as a presenting complaint and its control as a leading goal Only five had any sensation of bladder fulness, and these children had extreme urgency of urination The bladder aura or "call" often seen in adult paraplegics when their bladders are full, manifested by such signs as sweating, facial flushing, headache, and "goose pimples," has not been noted in our pediatric patients

Urinary infections and unexplained fevers that may represent walled-off infections of the upper urinary tract were frequent and severe in only one patient Seven had moderate to frequent urinary sepsis (Of the latter eight children, six had underlying renal pathology) Twelve had rare or occasional mild infections Ten never had recognized infections or unexplained fevers The records of 15 patients have no statement about urinary infection, but since all personnel are alert to this problem above all others, they had probably had no infections The detailed urologic findings in 34 of the patients in this series have been reported by Morales, Deaver, and Hotchkiss [4] All had evidence of cystitis that was neither disabling nor even disturbing Urologic surveys disclosed no pathology of the upper urinary tract in 19 children in any of their serial studies One had ureteral reflux as the only abnormality (Transient ureteral reflux was observed in a few cases) Thirteen had hydroureter and hydronephrosis, which were usually unilateral and usually accompanied by ureteral reflux Three had only mild hydronephrosis A bladder calculus was found in only one case Two patients refused to permit the studies, and six others have not yet had them for other reasons

None of our patients have died, nor have any been handicapped in their activities because of urinary problems other than incontinence Fifteen have passed their 10th birthdays Eight of these have no demonstrable dysfunction of their upper urinary tracts Of the remainder, two have not permitted the urologic studies The percentage with renal pathology is no higher than for the entire group of 45 In a search of the records of the adult division of the Institute of Physical Medicine and Rehabilitation, only one case of myelomeningocele was found This was in a boy of 20 with complete transverse myelopathy but with normal urinary morphology and kidney function despite a neurogenic bladder Those of our series who have advanced or irreversible renal pathology had suffered it before they first visited us

In eight cases suprapubic cystotomy was required for diversion of the urinary stream because the urethra was too small for a retention catheter Three of these patients also had plastic repairs of dilated, tortuous ureters Two of the three had nephrostomies as well, in order to provide temporarily improved drainage of a hydronephrotic kidney Although the postoperative course was often stormy, operation in each case was followed by improvement in the radiographic appearance of the kidney A bladder stone was removed cystoscopically from one patient Transurethral resection of the bladder neck was performed in one case because of progressive hydronephrosis and increasing bladder residual The kidney was restored to normal, and a good two-hour voiding schedule was established The same operation was performed on one of our patients elsewhere, with excellent results Two rectus fascia sling operations were performed to provide substitute sphincters, but both were fruitless

We were overly optimistic at an earlier date [2b] in expecting these children to develop automatic bladder control We do not attempt training in the presence of ureteral reflux or hydronephrosis In the presence of a spastic bladder with a small capacity, it is pointless However, we did investigate the use of propantheline (Pro-Banthine) as an aid to increasing the capacity of the bladder, and, in one case of small bladder and weak sphincters in a child who was previously always wet despite a sensation of fulness, a good two-to-three-hour schedule has been achieved However, we encountered marked increases in bladder residual after the administration of propantheline in other cases, so we have discontinued its routine use

One of the patients with a cervical lesion has a normal bladder The other patients have been able to initiate the stream by various maneuvers, but it continues only as long as the pressure is maintained Ten are thought to have had good results from bladder training and four moderately good, and four have slight degrees of bladder control Fourteen use a urethral or suprapubic catheter, two a urinal, and nine absorbent pads One is not accounted for in this regard Of the 10 with good results, 7 have incomplete motor and sensory lesions, though no sensation of bladder fulness An eighth has paraplegia, but only partial sensory loss A ninth retains bladder sensation Only one therefore had complete transection, and that at the ninth thoracic level The age and intelligence of the children as well as their social environments can be determined in relation to their degrees of bladder control by reference to the table The nature of the neurogenic bladder and upper-urinary complications must likewise be considered in evaluating the results of bladder training

Other Features.—Our children had their share of the usual ailments, such as dental caries, tonsillitis, and communicable diseases Refractive errors and strabismus were common Obesity was frequent, but was extreme in only one case, that of our oldest patient, who invariably lost considerable weight while in the hospital but regained with interest at home There was one case of prolapsed rectum, which was successfully repaired surgically Because of space limitations, information on further habilitation was not reproduced in the table However, the capacity of few of the patients was adequate for their age when first seen, according to the prognostications of Long and Lawton,[5] but few were behind predicted capacity in self-care activities at last reports Those few who are still deficient in bed and wheel-chair activities, washing, dressing, and eating are obviously limited by age, intelligence, other physical handicaps, or psychosocial obstacles

Eighteen patients of the 45 are independent in ambulation and can negotiate steps and curbs, with the exception in some cases of the high bus steps Eleven are independent in ambulation but have not yet mastered elevation Twelve have attained various stages of standing balance and walking between parallel bars, while one is too young to commence this training

Three are in the sitting balance stage Again, these accomplishments must be qualified by such factors as age, degree of motor involvement, and duration of habilitation, which are shown in the table Three patients have bilateral long leg braces, 14 a pelvic band in addition, and 15 a spinal brace as well Six have lower degrees of bracing, five have none, and one refused to accept braces as recommended One youngster has a Knight spinal brace alone, which she will use to support her in sitting until she is ready for further habilitation Ischial rings are often incorporated into the brace for a dislocated hip, and a lift is added to the corresponding shoe to compensate for shortening Other variations and night braces will not be elaborated on Appropriate crutches and wheel chairs are in use Twenty-one children of the 35 in the Institute of Physical Medicine and Rehabilitation group are of school age Twelve are known to be attending school Three of the total series have been referred for institutional care

Comment

We should have liked to correlate functional performance with such factors as age, sex, extent of the neurological damage, psychosocial factors, and age at the start of habilitation, but this could not be adequately done with a small series Considering that lifelong supervision by a team of specialists is projected, the intervals of observation have been too short for long-range forecasts, although experience with adult paraplegics has been favorable and can be applied to these cases A large head imposes a burden on balance and posture and may necessitate more bracing than would otherwise be necessary, but hydrocephalus does not necessarily indicate poor intelligence or a poor prognosis, nor is low intelligence a bar to successful results Other manifestations of brain damage, such as distractibility and poor attention span, are greater obstacles, but not as retarding as the emotional effects of a bad home environment It is striking that the child with the lowest I Q , 38, can nevertheless, at the age of 9 years, manage her wheel chair, feed herself, take care of ordinary hygiene, such as washing her hands and face, combing her hair, and brushing her teeth, and partially dress herself, despite the additional handicaps of paraplegia, a spastic arm, orthopedic deformities, and a negative, destructive, disturbed personality One of our most self-sufficient youngsters, an 11-year-old patient with spastic paraplegia, has an I Q of only 57

Even a child who will obviously require ultimate institutionalization will benefit from any degree of independence in self-care that he can be helped to achieve In regard to bladder training, we feel that scheduling, when at all successful, keeps the bladder residual at a minimum, reducing retrograde pressure and stasis It affords the child increased independence and self-confidence by reducing the amount voided involuntarily to a more readily controlled minimum Inasmuch as renal complications represent the greatest threat to these patients, extensive urologic surveys are carried out at intervals of six months to a year

We have measured results in terms of physical health and functional performance but we like to think as well of certain indefinable spiritual and social accomplishments These patients were brought to us because they survived the early months and years of life, often despite medical assurances to the contrary with no planning for their future lives How much better off they and their parents are when they have become self-sufficient! We would advise early removal of the myelomeningocele in order to prevent meningitis and the possibility of further disability or death However, contrary to widespread practice, we strongly recommend immediate habilitation to prevent physical complications, but more to maintain wholesome emotional attitudes on the part of the patient and his family Our greatest frustration has been in this area For example, one 8-year-old who had been expected for eight years to die was brought to us with a friable sac still in place Three years elapsed before the mass was removed and the patient and her parents were ready for correction of her contractures She was then braced and stood for the first time in her 11 years of life She has already started to ambulate But for undesirable ingrained attitudes, she might have enjoyed this experience and the new vistas it opened at a much earlier age Just as we condemn removal of the myelomeningocele without further plans for the child so we condemn orthopedic procedures without provision for the maintenance and utilization of the gains achieved Any procedure must reduce the disability appreciably to be justified We have not tried actively to correct dislocated hips, for example, because they are painless and do not increase the handicap

Summary

Forty-five children with spina bifida with myelomeningocele have been under our care for habilitation Fifteen are now between 10 and 18 years of age Our primary purpose has been to show that with proper medical care and habilitation these children need not die, but rather, like hundreds of veterans and civilians with spinal cord damage, they can become useful, independent, and self-supporting members of the community A hopeful approach starting at birth is important We feel that the results justify the effort and we should rather tackle the many remaining obstacles than turn our backs on these children altogether

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CLINICAL NOTES

OCULAR TOXICITY OF WHIPCIDE (3-METHYL-1-PENTYN-3-YL ACID PHTHALATE) IN HUMANS

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Whipcide (3-methyl-1-pentyn-3-yl acid phthalate) has *recently gained* an enviable reputation in veterinary medicine as a 95% effective agent against dog whipworm, Trichuris vulpis It is interesting that the damage caused by these worms has apparently usually been underestimated in the past, only by the clinical improvement *following their removal* has it now become *evident that* canine whipworm disease may be characterized by any of a number of symptoms, such as diarrhea, dermatitis, emaciation, nervousness, anorexia, perverted appetite, and convulsions The effective dose in dogs is *in the range of* 250 mg per kilogram of body weight in a single dose

Human whipworm (Trichuris trichiura) *infection* is similar to the canine disease in that it has been difficult to eradicate with *agents so far* known and its potential damage to the host has frequently been underestimated True, there is agreement that an overwhelming infection in an infant may produce diarrhea, dysentery, intestinal obstruction, or emaciation, but it has not been so generally recognized that milder human infections also may cause diarrhea and even dysentery Because these *symptoms* do occur, though, the search for an anthelmintic effective against T trichiura should proceed To this end, a trial with Whipcide in human infections was initiated

Results of Treatment

Whipcide tablets, or *coated granules on* various dosage scales, were used to treat 143 adult Honduran mestizos with T trichiura infections The first 36 individuals received dosages ranging from 20 to 145 mg per kilogram per day for four or five days, in divided daily amounts This treatment *regimen* was adjudged a failure inasmuch as only about 22% had an apparent cure When higher amounts were administered, nausea, buzzing in the ear, and slight deafness occurred, each in one instance The remaining 107 patients received only a single dose of the drug, 60 of them in the fasted state and 47 in the nonfasted state, about two hours after a meal The amount varied, both in the group that had fasted and the group that had not, but the majority of patients received between 100 and 200 mg per kilogram in a single dose, only seven received quantities greater than 200 mg per kilogram

The over-all *cure* rate was about 50%, with the subjects who had not fasted doing a little better than those who had The distribution of cures and failures seemed not to be closely related to the quantity of drug administered, many cures occurring with the lower dosages *and several* failures with the greater amounts A cure rate of 50% against Trichuris with a one-*dose treatment* would be encouraging if the drug were *nontoxic Unfortunately*, though, *conjunctivitis* and keratitis *appeared in 16% of these* individuals, and, in several instances, these ocular *complications* were, temporarily, severe They occurred in 100% (all seven) of the patients who received a dose greater than 200 mg per kilogram They developed in 9 5% of patients who received a dose of between 100 and 200 mg per kilogram and were noted about equally among the subjects who fasted and those who did not

The development of these ocular lesions *followed* a pattern About 12 hours after ingestion of the drug there was burning and redness of the conjunctivas Sometimes *the process stopped at this stage*, but more *commonly it went on to a generalized* filmy keratitis, agonizing photophobia, and ocular pain In the more severe cases, a moderately dense corneal opacity, 1 5 to 2 0 mm *in diameter, developed near* the pupil within 24 hours, and in one instance (a patient who inadvertently had received 385 mg per kilogram) there was almost complete opacity of both corneas 24 hours after drug ingestion In two cases, moderate deafness occurred along with the ocular complications Fortunately, there was complete clearance of all eye lesions and of the deafness Usually this occurred in seven to eight days, though, in the *severe cases* referred to three weeks elapsed before there was complete disappearance of the keratitis

Comment

Whipcide obviously has trichuricidal *properties* in the human as well as in the dog host However, the severity of the frequent ocular complications precludes *the widespread use of the orally given dose in* humans Unfortunately, the effective dose in dogs (about 250 mg per kilogram) cannot be safely approached in humans because of this toxicity It is interesting that no ocular toxic reaction has been reported among several hundred dogs who have received Whipcide for T vulpis Bunde and his associates[1] have repeatedly given dogs as much as 600 mg per kilogram and looked carefully for toxic reactions in the eye but have never been able to detect any indication of such Monkeys, likewise, have not developed these signs with high doses of the drug On the other hand, a group of St Louis Zoo chimpanzees receiving 250 mg per kilogram did develop ocular abnormalities of the type described in our human cases[2] From dog studies, it was believed that the first sign of a toxic reaction would have been drowsiness, the hypnotic *dose in* dogs is in the neighborhood of 500 mg per kilogram or more No such drowsiness occurred in human subjects, however

The mode of action of Whipcide is not clear In dogs, the intravenously administered dose is as effective as the orally administered amount It may be, therefore, that even the orally administered drug must be absorbed into the blood stream in order to act against the worms instead of acting *directly* on them in the intestines As to the toxicity of Whipcide, it

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From the Medical Service of the Tela Railroad Company (United Fruit Company) Hospital Dr Hoekenga is now in Panama might be hypothesized that this is due to a breakdown product and that the same breakdown products do not occur in all species, for the moment, this is the most satisfactory explanation

Since Whipcide seems so eminently satisfactory in the treatment of dog whipworm disease, one is reluctant to discard it completely from human trials before exploring all avenues It may be that repeated small doses will reduce heavy T trichiura infections to light ones and be of value in this way Or it may be that the more soluble sodium salt of Whipcide may be effective against Trichuris in enemas These are problems that remain to be worked on

Summary

Whipcide (3-methyl-1-pentyn-3-yl acid phthalate) was given to 143 Honduran adults with Trichuris trichiura infections With daily orally given doses of 20 to 145 mg per kilogram of body weight for four or five days, the drug was only 22% effective With single doses of 100 to 200 mg per kilogram, a 50% cure rate was achieved, but 9 5% of the patients developed conjunctivitis and keratitis With single doses of more than 200 mg per kilogram in seven patients, the cure rate went up to 100%, but, unfortunately so did the rate of ocular complications

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CONGENITAL ANOMALIES DUE TO ATTEMPTED ABORTION WITH 4-AMINOPTEROGLUTAMIC ACID

Hyman J Meltzer, M D , Chicago

Thiersch[1] used 4-aminopteroglutamic acid (Aminopterin), a folic acid antagonist, as an abortifacient in 12 patients for whom therapeutic abortion was indicated The drug was given orally during the first trimester of pregnancy An initial dose of 2 to 3 mg was followed by 3 to 10 subsequent doses of 1 to 2 mg at 12-hour intervals some patients receiving as much as 20 mg Fetal death and spontaneous abortion occurred in 10 of these patients, in the other 2 surgical evacuation became necessary and in both live, malformed fetuses were detected, with deformities such as hydrocephalus, harelip, and cleft palate In one of the 10 in whom abortion was delayed but finally occurred, a meningoencephalocele was detected Thiersch suggested that, because fetal malformations occurred when early spontaneous abortion failed to take place after administration of 4-aminopteroglutamic acid, subsequent surgical evacuation of the pregnant uterus might be necessary to prevent birth of defective infants or possible monsters

Report of a Case

A 25 year-old woman para 1 gravida 2 presented herself to me with the following history Her last menstrual period began Dec 6 1954 A Friedman test for pregnancy was positive on Jan 25 1955 For the purpose of initiating an abortion 4-aminopteroglutamic acid had been obtained and 40 tablets of 0 5 mg were taken over a period of several weeks according to the dosage carried out by Thiersch Bleeding in moderate amounts was provoked but abortion failed to occur The patient had no medical supervision throughout this period A Friedman test done at this time (Feb 24 1955) was still positive

The patient was first seen by me on March 1 1955 and examination revealed the uterus to be enlarged to the size of a 10-week pregnancy and the cervix closed with scant bleeding visible from the cervical os General physical examination and blood cell count were essentially normal In view of the work of Thiersch the possibility of fetal abnormality resulting from the high dosage of this toxic drug was considered and consultation was obtained for the consideration of a therapeutic abortion to prevent such an occurrence However because of the paucity of work on this matter in humans the article by Thiersch being the only one published it was decided to allow the patient to go to term

She continued to bleed intermittently to about the 24th week of her pregnancy and subsequently stopped bleeding Her prenatal course was uneventful thereafter and on Sept. 1 1955 after a short easy labor a living 7 lb 1 oz. (3,203 gm) baby was delivered by low forceps and episiotomy Examination of the baby revealed besides a congenital left talipes-equinovarus multiple skull anomalies as evidenced by roentgenographic study The report of the examination stated that the skull demonstrated malformation of the occipital bone characterized by anterior bending and by lacunar formation There was in addition synostosis involving the lateral extremity of the lambdoid sutures The posterior fontanel was extremely wide and this is an expected accompaniment of craniosynostosis In addition the anterior fontanel was large and relatively posteriorly displaced which is also an expected finding in premature synostosis The impression was that the infant had (1) craniosynostosis of the lambdoid sutures and (2) lückenschädel of the occipital bone Roentgenograms of the chest and electrocardiograms were normal There was no evidence of cerebral agenesis at this time according to pediatric and neurological consultants It was felt that at least six months should elapse before a prognosis could be made in that regard

Comment

The etiology of the congenital anomalies of this newborn baby must in some measure be fixed on the injudicious use of 4-aminopteroglutamic acid Greenhill[2] had warned that if this drug was used indiscriminately monstrosities could result in some cases He also urged that the drug not be used for this purpose until its use could be more properly evaluated

This case is offered as an addition to three cases of congenital anomalies of the fetus after the use of this drug for abortion presented by Thiersch and it should serve as added warning that the use of this drug for inducing abortion should be condemned unless the patient is hospitalized, so that adequate blood studies can be made during its administration and surgical evacuation can be considered should this method fail

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THE SEARCH FOR A NONADDICTING ANALGESIC

GUEST EDITORIAL

Harris Isbell, M D

A potent pain-relieving drug that would not produce addiction has long been sought Such an agent would be very valuable, since it would permit physicians to relieve pain in chronic painful conditions not amenable to definitive therapy for long periods of time In addition to not producing physical dependence, the characteristics desired in such an agent would include analgesic potency equal to that of morphine, toxicity no greater, and preferably less, than that of morphine, absence of the undesirable side-effects of morphine, such as respiratory depression, nausea, and constipation, and, perhaps most important of all, no tolerance to the pain-relieving effect

The search for such a drug has been carried on since 1929 under the aegis of the committee on drug addiction and narcotics of the National Research Council [1] The original approach was based on attempts to modify the properties of morphine by altering the molecule chemically [2] With the discovery of meperidine and methadone emphasis shifted to the synthetic pain-relieving drugs More recently attention has been given to the analgesic properties of the opiate antagonist nalorphine[3] and to mixtures of opiates and nalorphine [3a]

So far, the object of this search has not been attained No potent pain-relieving drug has been discovered that is not characterized by the development of tolerance and dependence, except insofar as nalorphine may meet the requirements In general, enhancement of analgesic potency has been accompanied by an equal increase in the dose of the drug that will satisfactorily support dependence

Six different chemical groups of analgesic drugs are now known[4] the morphine, morphinan, meperidine, hexamethyleneimine, methadone, and dithienylbutenylamine families At first glance there appears to be little resemblance between the chemical structures of some of these classes of drugs Examination of molecular models shows that, with some imagination, a central phenyl-piperidine nucleus can be made out in all six classes [4] It may be possible that the phenyl-piperidine structure is necessary for analgesia of the morphine type and is always associated with the development of tolerance to the pain-relieving effect, and with the development of physical dependence

Such a gloomy view is, however, not necessarily justified It seems reasonable to assume that drugs that possess chemical structures similar to those drugs already known to be addicting would themselves produce addiction The synthetic analgesics that are available have been discovered either by synthesis of a structure similar to that of some drug already known or have been discovered accidentally The latter compounds were originally synthesized for purposes other than analgesia In the course of pharmacological screening of these drugs it was noted that they induced the Straub reaction, a typical morphine-like effect, in mice This led to further investigation, which showed that the drug induced a fairly complete pattern of morphine-like effects in lower animals, such as analgesia in rats, excitement in cats, and sedation in monkeys and dogs Thus the chemical and biological methods by which the new analgesics have been discovered have been selecting drugs that are closely related to morphine pharmacologically and that are therefore, as one might expect, also addicting

A change in approach seems indicated Drugs with the phenyl-piperidine structure should be avoided, and drugs that give a fairly complete pattern of morphine-like effects in lower animals should be discarded We should seek agents that are analgesics but that otherwise are not morphine-like One of the great difficulties in attempting this line of investigation is the lack of a simple method for screening analgesics in lower animals that would reflect accurately the effect of the drug on the all-important subjective reaction to pain in patients Methods currently used for screening analgesics measure predominantly a reflex that is mediated through the spinal cord Effects on this reflex, though usually correlated with analgesia in man, do not necessarily predict the effects on reaction to pain and, hence, the potential clinical usefulness of the agents under study It may be that a number of promising drugs have already been discarded because of negative or weak analgesic tests in animals An example is nalorphine, although nalorphine is a very weak analgesic, it has recently been shown that it is as effective as morphine in relieving postoperative pain [3]

Since it is known that physical dependence on nalorphine does not develop,[5] one might say that a nonaddicting analgesic has been found Unfortunately, the side-effects of nalorphine, particularly disturbing mental reactions, may preclude clinical use It is also not known whether tolerance to the analgesic effect of nalorphine develops under conditions of chronic use It may also be possible that modifications in the nalorphine structure might reduce some of the very undesirable side-effects while retaining the analgesic effects and lack of addictive potentialities Investigations along these lines are currently under way

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REGULATION ALLOWING TAX DEDUCTION OF EXPENDITURES FOR REFRESHER COURSES

Physicians should be gratified to learn that efforts to get the Internal Revenue Service to issue a regulation allowing physicians to deduct their expenditures in taking postgraduate "refresher" courses have now met with success (see this issue, page 1260) A "proposed" regulation just issued will become "final" according to the tax laws sometime after August 9 As a practical matter, "proposed" regulations are effective when issued, although they are subject to minor modifications of language before becoming final

The regulation provides that expenditures for education are deductible if they are for a "refresher" or similar type of course taken to maintain the skills directly and immediately required by the physician in his employment or business An educational course to be covered should be designed for established medical practitioners to help them keep abreast of current developments in the profession, it should be of short duration, it should not be taken on a continuing basis, and it will not carry academic credit Education designed to prepare the practitioner to enter a specialty will not be acceptable This example is given in the regulation A, a general practitioner of medicine, takes a course of study to become a pediatrician B, a general practitioner of medicine, takes a two-week 'refresher" type of course reviewing developments in several specialized fields, including pediatrics, for the purpose of carrying on his general practice A s expenses are not deductible B s expenses, including any transportation expenses and living expenses while away from home, are deductible

When a taxpayer travels away from home primarily to obtain 'refresher" education, his expenditures for travel, meals, and lodging while away from home are deductible However, expenses for personal activities such as sightseeing, social visiting or entertaining, or other recreation will not be allowed When the purpose of the travel is primarily personal, expenditures for travel, meals, and lodging will be disallowed, although presumably tuition for a bona fide refresher course will be allowed In determining whether the primary purpose of the travel is personal, the relative amount of time devoted to personal activity as compared with the time devoted to educational purposes will be considered

The search for medical knowledge is never-ending, and the horizon of achievement is ever-shifting The practicing physician must necessarily engage in a continuous process of learning throughout his professional life Physicians cannot adequately serve their patients unless their fund of medical knowledge is always kept fresh and intact They must constantly be informed of all developments that affect their technical competence The expenses of maintaining professional competence easily qualify as deductible business expenditures Obviously, the amounts paid are "directly connected" with a business, as the tax law requires We are pleased that the Internal Revenue Service has taken this step to remove the inequity that existed against physicians

POSTGRADUATE MEDICAL EDUCATION

Elsewhere in this issue of THE JOURNAL is the annual list of postgraduate courses for practicing physicians for the year beginning September 1, 1956 This list was compiled by the Council on Medical Education and Hospitals from replies to its questionnaires by the 82 American medical schools, the 1 400 hospitals approved for internship and residency training, and the various national, state, and county medical societies

The need for some kind of continuing education to keep abreast of advances in medical knowledge has long been recognized by the thoughtful practicing physician as essential to his own ability to care best for his patients The past decade had brought an almost revolutionary increase in such knowledge, springing largely from research in the basic sciences This has in turn had a tremendous influence on the methods and techniques of diagnosis and therapy Each year seems to accelerate this change and accrual

The survey on Postgraduate Medical Education in the United States, 1952-1955, by the Council on Medical Education and Hospitals reported in THE JOURNAL last year by Douglas D Vollan[1] showed five ways in which practicing physicians continue their education (1) reading of the medical literature, (2) consultations with colleagues, (3) hospital staff and department conferences, (4) national, state, and local medical society meetings, and (5) formal postgraduate courses Of these, medical reading was most preferred by the physicians answering, and postgraduate courses were the second preference Postgraduate medical education, of which the courses are one form, has become the third and continuing phase of medical education, vital to physicians in general practice as well as to those confining their practice to a specialty Medical education is becoming a lifelong process, with the M D degree terminating the first phase, the internship and residency constituting the second or graduate phase, and the postgraduate third phase continuing each year of the physician's professional career

The reports of medical discoveries and changes in basic science concepts flooding the literature are of value to sick people only when their own physicians become aware of these discoveries and learn the uses of the new techniques The essence of professionalism is "know-why" as well as "know-how " A function of the better postgraduate courses is the provision of concentrated information on new developments in medicine correlated with the basic science background required

The list of postgraduate courses is compiled and presented to provide physicians a single reference that they may use as a point of departure for eliciting further information about courses from the sponsors The courses in the list are not evaluated by the Council on Medical Education and Hospitals, unlike the status of the lists of approved medical schools and hospital training programs The information provided is that submitted by the sponsor The list should however, serve a useful reference function for those physicians seeking formal courses on nearly any subject for lengths of time from one day to several months

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[1] Vollan D D Scope and Extent of Postgraduate Medical Education in the United States J A M A 157 703-705 (Feb 26) 1955

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

Many times I have been asked "What is your platform for 1956-1957?" "What are you going to try to accomplish in the next year?" "What are your aims and objectives?" First, let me say that it is my desire and ambition to have everyone in American medicine working together as a team and in the "team play" spirit Medicine is too big and too great for any of us to be going our separate ways, and one person or one branch of medicine cannot carry the load alone As President of the American Medical Association, I certainly will need your personal help and the assistance of each local and state society I not only need it, but seek and appeal for it

Your A M A too must have the aid of all members if it is to succeed in its projects and endeavors Likewise, all of us will require the assistance of those in allied medical fields Only working together can we accomplish more great things for medicine and better health for the American people This need for closer liaison and better understanding among all groups connected directly or indirectly with improving the health of our people is not something new It has been an objective of other A M A presidents, and it is an objective of the A M A In a way, all my objectives are tied to this single, giant aim of everyone working together Let me enumerate them

1 Resolve difficulties arising between the A M A and other groups All of us, I believe, must take the time and effort to overcome problems with professional, patriotic, fraternal, civic, business, industrial, labor, or philanthropic organizations

2 Promote discussion of the mutual problems of the profession and hospitals and of the profession and the various allied groups of medicine

3 Strive for better doctor-patient relations and a clearer public understanding of the problems of medicine

4 Emphasize that doctors have a real and legitimate interest in legislation The American Medical Association must continue to support legislation on health and medical problems in keeping with sound economic and social progress and with the preservation of a free government in which the emphasis is on individual efforts and enterprise, rather than on subsidy, handout, and federal interference We must not seek private favors We must support or oppose legislation because of our interests in the best possible medical care for the people and because of our intense desire to see freedom survive

5 Encourage the development of health facilities where they are presently inadequate I personally do not believe there is a "doctor shortage" as has been charged by some critics Some rural communities do not have doctors, but often this is just a matter of scanty population I believe that doctors can be attracted to small communities if good facilities are provided By working with communities, I am sure local and state societies can help to fill the doctor and/or physical facility needs of almost any area in the country

6 Stimulate the interests of more young doctors in medical problems and in their solution at local, state, and national levels In my travels as President-Elect, I went to medical schools for the purpose of telling students more about the A M A, its functions, and its objectives I will continue to talk to students wherever I can, hoping to interest more of them in local and state medical societies and in the A M A Our societies have a great deal to offer all young men and women of medicine, and I think we should all make an extra effort to boost the interest of our fellow physicians in the medical activities at the local, state, and national levels

7 Alleviate the misunderstanding and misinformation existing among physicians and among people outside the profession One conclusion of the nationwide public opinion poll conducted for the A M A by an independent research firm was that many criticisms by doctors of the Association were based on lack of information or actual misunderstanding of basic ideas and procedures

These twin ailments of misinformation and misunderstanding exist in other areas, too For example, the special committee to review the functions of the Joint Commission on Accreditation of Hospitals reported at the Annual Meeting in June that "much of the criticism [of the Joint Commission] is based on misunderstanding and misinformation" By being informed on the issues pertinent to our profession, to medicine, and to our societies, we can aid immensely in curing these twin ailments

As president of the A M A, I realize the great responsibility I have in trying to combat and clear up these several problems listed here And I pledge to do all in my power for you, the profession, and the Association I am aware of the high position and important duties of this office of President, and I sincerely appreciate the trust you have placed in me I earnestly pray that I can accomplish as much for medicine as my illustrious predecessors and that I can be a worthy spokesman for your American Medical Association

DWIGHT H MURRAY, M D,
Napa, Calif

ORGANIZATION SECTION

COUNCIL ON MEDICAL PHYSICS

The newly created Council on Medical Physics had its organizational meeting at A M A headquarters on June 15-16, 1956 The new Council will continue some of the activities of the former Council on Physical Medicine and Rehabilitation as part of its service program to the medical profession The Council will carry on activities in the field of medical apparatus, instruments, and devices This program is under serious consideration at the present time, and a statement will appear in the Council columns of THE JOURNAL in a subsequent issue

INTERNATIONAL MEDICAL FILM PROGRAM

A program of foreign-made medical films will be an added feature of the 106th Annual Meeting of the American Medical Association in New York City in June, 1957 Films for the program will be selected from applications submitted by authors and producers from other countries Applications for the program and further information can be obtained from the American Medical Association, Motion Pictures and Medical Television, 535 N Dearborn St , Chicago 10 This film program will be presented in cooperation with Johnson & Johnson, New Brunswick, N J , as a part of the scientific program

WOMAN'S AUXILIARY

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Publications Chairman Mrs E M Egan 6741 S Euclid Ave Chicago 49
Public Relations Mrs F Erwin Tracy 202 Old Mill Rd Middletown Conn
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Today's Health Mrs Rodney Stoltz, 710 Third St , N W Watertown S D
*Bulletin Circulation Mrs Matthew N Hosmer, 130 Deer Park Ave San Rafael, Calif
*Civil Defense Mrs Paul E Rauschenbach, 612 E 29th St Paterson N J
*Mental Health Mrs Aaron Margulis 1664 Cerro Gordo Rd Santa Fe, N Mex
*Recruitment Mrs L D Jacobson 2412 Skyline Blvd Eugene Ore
*Reference Mrs Rollo K Packard 14093 Davana Terrace Sherman Oaks Calif
*Safety Mrs Thomas F Reid, Terraced Acres South Berwick Maine
Executive Secretary Margaret N Wolfe 535 N Dearborn St Chicago 10

LOANS BY SEARS-ROEBUCK FOUNDATION

Assistance in establishing 11 new practice units has been given to 13 physicians in the form of loans by the Sears-Roebuck Foundation The loans, ranging from $3,000 to $15,000, were made under the 1956 Plan of Assistance of the foundation, through an annual revolving assistance fund grant The plan (*J A M A* 159 38 [Sept 3] 1955) is intended to help physicians supplement personal funds or local financing that does not cover the entire cost of establishing practices The foundation hopes especially to be of help in the distribution of doctors in areas where present medical care or facilities are inadequate The latest loans, totaling $71,500, went to physicians in Georgia South Carolina, central Colorado, southern Michigan, Oregon, South Dakota, northern Minnesota the Rio Grand Valley of Texas, and suburban New Haven, Conn

The first annual grant of $125,000 was made available in 1955 A total of $172,500 has been loaned to 31 physicians in 17 states, including the latest group So far, most loans have been given to graduating interns just establishing themselves in critical areas and to established physicians in rural areas where rebuilding is necessary to expand currently inadequate medical care facilities Applications now are being taken for the last half of this year, when approximately $80,000 will be available for loans Those received before Oct

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* Special committees

1 will be considered, and loan announcements will be made before Dec 15 Applications can be obtained from state, county, and local medical societies The foundation administers the plan with screening and selection of applicants done by a 17-member advisory board of physicians from all sections of the country, named by the A M A Board of Trustees

FEDERAL MEDICAL LEGISLATION

Second Session, 84th Congress

Liberalization of Hill-Burton Act

The present Hill-Burton hospital construction act makes a governmental agency or a nonprofit corporation or association that owns and operates a nonprofit hospital eligible for construction grants for diagnostic or treatment facilities Senator Mundt (R , S D), in S 3853, would also make eligible "a nonprofit corporation or association which receives, from the State in which any such corporation or association is located or from any political subdivision of such State, any funds for the operation of a mental health center or clinic " Senators Flanders (R , Vt), Bridges (R , N H), Cotton (R , N H), Payne (R , Maine), Smith (R , Maine), and Langer (R , N D), in S 4033, would make eligible Hill-Burton hospital construction funds for erecting and equipping of diagnostic or treatment centers operated by "a nonprofit corporation or association having contractural affiliation with a nonprofit hospital approved for intern or resident training " These measures were referred to the Committee on Labor and Public Welfare

Registration of Welfare and Pension Plans

Senators Douglas (D , Ill), Murray (D , Mont), and Ives (R , N Y), in S 3873, would require the registration with the Securities and Exchange Commission of all types of employee pensions or welfare benefit plans covering 25 or more employees Organizations with plans that cover more than 100 employees would be required to file an annual report giving, in detail, expenses, salaries, fees, reserve, and other pertinent facts The Securities and Exchange Commission would be given broad investigatory powers and, whenever it appears that the law is being violated or that embezzlement is present, could transmit such charges to the attorney general for prosecution An advisory council would be provided to make studies, reports, and recommendations This measure was referred to the Committee on Labor and Public Welfare

Representative Thompson (D , N J), in H R 11581, has introduced a similar bill except that registration and annual reporting of welfare and pension plans would be made to the Secretary of Labor instead of the Securities and Exchange Commission This bill was referred to the Committee on Education and Labor

Extension of Phase of 1954 Vocational Rehabilitation Act Amendments

Senator Magnuson (D , Wash), in S 3875, and Congressman Dempsey (D , N Mex), in H R 11369, would extend to June 30, 1957, that part of the Vocational Rehabilitation Act that pertains to grants to the states and other nonprofit organizations and agencies who are "planning, preparing for, and initiating a substantial nationwide expansion of vocational rehabilitation programs in the States " The Senate bill was referred to the Committee on Labor and Public Welfare and the House bill to the Committee on Education and Labor

Narcotics Control Act of 1956

Congressman Christopher (D , Mo), in H R 11363, has introduced a narcotics control act, identical with S 3760, previously reported The use of heroin in the United States would be outlawed, and stiffer penalties for sale and smuggling of narcotics would be mandated This act was referred to the Committee on the Judiciary

Congressman Boggs (D , La), in H R 11619, introduced, and the House promptly passed, a narcotic control bill similar to his previous bill, H R 11106, except that his more recent measure prescribes penalties against persons who use communication facilities in illegally selling or distributing narcotic drugs, omits the section of the bill that permits wiretapping, and exempts the Commonwealth of Puerto Rico unless its legislature gives consent Congressman Baker (R , Tenn) introduced, in H R 11620, a bill identical with H R 11619 H R 11619 and H R 11620 were referred to the Ways and Means Committee

National Library of Medicine

Congresswoman Church (R , Ill), in H R 11364, Senator Dirksen (R , Ill), in S 3949, and Congressmen McVey (R , Ill), in H R 11445, and Hoffman (R , Ill), in H R 11573, have introduced bills identical with a series previously reported, which would establish a National Library of Medicine to be located in the city of Chicago The books and periodicals of the Armed Forces Medical Library would be transferred to this library The House bills were referred to the Committee on House Administration and the Senate bill to the Committee on Labor and Public Welfare

Congressman Priest (D , Tenn), in H R 11524, would transfer the Armed Forces Medical Library to the Public Health Service and call it the National Library of Medicine H R 11524 is similar to S 3430, previously reported and passed by the Senate This measure was referred to the Committee on Interstate and Foreign Commerce

Omnibus Health Bills

Senators Hill (D , Ala), Smith (R , N J), Murray (D , Mont), Ives (R , N Y), Neely (D , W Va), Purtell (R , Conn), Lehman (D , N Y), Kennedy (D , Mass), Bender (R , Ohio), McNamara (D , Mich), and Allott (R , Colo), have introduced an Omnibus Health Bill, S 3958, which would provide (1) graduate traineeships for public health personnel with awards directly to the individuals or to the institutions, (2) advanced traineeships for professional

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From the Washington Office of the American Medical Association

nurses for training as teachers, administrators, or supervisors through colleges, (3) earmarked funds for practical nurses training through the Federal Vocational Education Program, (4) extension of the Hospital Construction Act (Hill-Burton) for two additional years, and (5) mental health grants for studies and research projects for the development of improved methods of diagnosing and treating mental illness and administering such programs This measure was passed by the Senate Congressman Priest (D, Tenn), in H R 11549, has introduced a similar measure, except that titles 4 and 5 are omitted Hearings were promptly held before the Interstate and Foreign Commerce Committee on this bill

Bureau of Older Persons

Senator Magnuson (D, Wash), in S 3932, and Congressman Magnuson (D, Wash), in H R 11577, Rhodes (D, Pa), in H R 11638, and Thompson (D, N J), in H R 11794, have introduced identical measures with H R 8863 and three other measures previously reported. These measures would establish a bureau of older persons in the Department of Health, Education, and Welfare to authorize federal grants to assist in the development and operation of studies and projects to help older people The Senate bill was referred to the Committee on Labor and Public Welfare, and the House bills to the Committee on Education and Labor

Mosquito Research and Control Grants

Congressman Rivers (D, S C), in H R 11451, has introduced a mosquito control measure identical to seven previously reported bills They propose to "provide for research and technical assistance relating to the control of saltmarsh and other pest mosquitoes of public health importance and mosquito vectors of human disease" The administration would be vested in the Surgeon General of the Public Health Service This measure was referred to the Committee on Interstate and Foreign Commerce

Council on National Fitness

Congressman Murray (D, Ill) would establish a council on national fitness by H R 11521 The council, appointed by the President, would study (1) the existing and long-range effects of various forms of physical exertion on individuals at various age levels, (2) the medical, physical, physiological, emotional social, and educational aspects of all sports at various age levels, and (3) the amount of time that should be allotted from the school day in supervised physical educational programs at various age levels Within one year after appointment, the council would report to the President results of its studies, with recommendations for the program to be adopted by the schools local governments, and industry, to promote and advance physical education and national fitness This measure was referred to the Committee on Interstate and Foreign Commerce

Commission on Doctor Shortage in U S

Congressman Dorn (R, N Y), in H R 11518, proposes to establish a commission to study the "shortage of doctors of medicine in the United States" Particular attention would be given to "(1) The policy of medical colleges in the United States of limiting the number of students admitted to study medicine, (2) The number of doctors of medicine being graduated annually from medical colleges in the United States (3) The extent to which hospital administrators in the United States are required to seek doctors of medicine in foreign countries for the purpose of inviting such doctors to serve internships in the United States, (4) How many citizens of the United States who cannot gain admittance to medical colleges in the U S are going to foreign countries to study medicine and (5) The extent to which the several States of the United States and the District of Columbia permit doctors of medicine who have been graduated from medical colleges in foreign countries to practice medicine in such States or the District of Columbia The Commission shall submit to the Congress interim reports at such time, or times, as the Commission deems necessary, and shall submit to the Congress its final report not later than one year after the date of enactment of this Act, at which time the Commission shall cease to exist." H R 11518 was referred to the Committee on Interstate and Foreign Commerce

Educational Expense Tax Deductions

Congressman Hayworth (D, Mich), in H R 11545, has introduced an identical measure with Senator Fulbright's S 3711, which would allow the taxpayer, in computing his income tax, to deduct the amounts paid to educational institutions above the secondary level for tuition, books, and supplies for himself or his dependents if students This measure was referred to the Ways and Means Committee Senator Magnuson (D, Wash), in S 4061, would allow an additional exemption of $600 each for the taxpayer, child, and spouse, if such taxpayer, child, and spouse is a full-time student in college This measure was referred to the Committee on Finance

Report of Treaty Effects Before Ratification

Senator Bricker (R, Ohio), in S Res 282, would amend the standing rules of the Senate to require that "When a treaty is reported from a committee recommending the advice and consent of the Senate to ratification, the report of the committee shall state to what extent, if any, ratification thereof will operate to supersede or modify an Act of Congress" If such treaty is ratified, the report will be referred to the Judiciary Committee for annotating the U S Code S Res 282 was referred to the Committee on Rules and Administration

Civilian Federal Employees Health Insurance

Congressmen Murray (D, Tenn) and Rees (R, Kan), in H R 11630, would provide major medical expense insurance for government employees and their dependents, to be paid for by the government This measure is similar to H R 10436 introduced by Congressman Murray, previously reported The latter measures differ from the previously reported bill in that the Comptroller General of the United States is directed to study the advisability of payroll deductions for health insurance If found feasible voluntary payroll deductions would be authorized for health insurance Hearings were promptly held before the House Post Office and Civil Service Committee

MEDICINE AND THE LAW

TAX DEDUCTION EXPENSES FOR EDUCATION

The Bureau of Internal Revenue has issued a proposed regulation that will permit physicians to take a federal income tax deduction for expenditures in taking short "refresher' courses within their field of practice The regulation, as a practical matter, is effective now, although it is subject to minor changes before becoming final This regulation, in substance, conforms to a decision of the Circuit Court of Appeals for the second circuit in 1953 in a case involving a lawyer Many of the district directors of the Bureau of Internal Revenue in various parts of the United States have refused to apply the decision to physicians

In the case referred to, *George G Coughlin v Commissioner of Internal Revenue*, 203 Fed (2d) 307, the question was presented of whether Mr Coughlin, a practicing lawyer who handles tax matters, could deduct expenses of tuition, travel, and board and lodging, amounting to $305, incurred in attending a series of lectures given by the New York University Institute on Federal Taxation The American Medical Association, through its attorneys, filed a brief in the case as *amicus curiae* The attorneys for the American Medical Association contended that the "ordinary and necessary expenses" of a trade or business include expenditures incurred by a physician in keeping abreast of current developments so that he may properly pursue his calling This position is now recognized by the Internal Revenue Service in its regulation, which is set forth in full below

§ 1 162-5 Expenses for education —(a) (1) In general, a taxpayer's expenditures for his education are personal and are not deductible

(2) Expenditures for education which are made primarily for the purpose of, or which have the result of, obtaining a position for the taxpayer, qualifying him to enter an employment or otherwise become established in a trade or business or a specialty therein, establishing or enhancing substantially his reputation in his trade or business, substantially advancing him in earning capacity, salary, status, or position, or primarily fulfilling the general cultural aspirations or other personal pusposes of the taxpayer are personal expenditures and are not deductible

(b) As an exception to the general rule in paragraph (a) (1), expenditures by a taxpayer for his education are deductible under section 162 if—

(1) The expenditures are ordinary and necessary for the maintenance of the taxpayer's employment or other trade or business or specialty therein and are directly and immediately related thereto, and

(2) The degree of business necessity and relationship of the expenditures clearly outweighs any personal aspects of the expenditures

In no event, however, are expenditures which fall under paragraph (a) (2) deductible

(c) Expenditures by a taxpayer for his education may be deductible under the provisions of paragraph (b) if they are for education of a "refresher" or similar type necessary to maintain (but not to advance) the skills directly and immediately required by the taxpayer in his trade or business *Among* the factors which will be considered as indicating that education is of a refresher or similar type are that it is especially designed for, and attended primarily by, established practitioners or members of a trade or business for purposes such as keeping abreast of current developments in such trade or business, is of short duration, is not taken on a continuing basis, and does not carry academic credit Similarly, among factors indicating that the education is not of a refresher or similar type are that it is generally designed for persons preparing to enter an employment or otherwise become established in a trade or business or specialty therein, is of more than short duration, is for the continuing improvement and advancement of the taxpayer's talent or skills, or carries academic credit

(d) Expenditures made by an employee for his education as a requisite to the continued retention of his salary, status, or employment as a result of an express requirement of his employer may be deductible under the provisions of paragraph (b) whether or not the education is of a refresher or similar type Thus, expenditures for courses which carry academic credit may be deductible under the provisions of this paragraph However, expenditures are not deductible under the provisions of this paragraph if, in more than an incidental and relatively minor manner, they have the result of obtaining a different position for the taxpayer, qualifying him to enter an employment or otherwise become established in a trade or business or specialty therein, establishing or enhancing substantially his reputation in his trade or business, or substantially advancing him in earning capacity, salary, status, or position A taxpayer is considered to have made expenditures as a result of an express requirement by his employer, as a requisite to continued retention of his salary, status, or employment only if the requirement is imposed primarily for a bona fide business purpose of the taxpayer's employer and not primarily for the taxpayer s benefit, and the education has a direct relationship to the duties of the taxpayer s present position

(e) In general, a taxpayer's expenditures for travel as a form of education shall be considered as primarily personal in nature and therefore not deductible

(f) Where a taxpayer travels away from home primarily to obtain education the expenses of which are deductible, his expenditures for travel, meals, and lodging while away from home are deductible However, where as an incident of such trip the taxpayer engages in some personal activity such as sightseeing, social visiting or entertaining, or other recreation, the expenses of such personal activity constitute nondeductible personal or living expenses and will not be allowed as deductions Where the purposes of a taxpayer's travel away from home are primarily personal, the taxpayer's expenditures for travel, meals, and lodging will be disallowed whether or not the taxpayer participates incidentally in some educational pursuit meeting the requirements of paragraph (c) or (d) of this section Whether the purposes of a particular trip are primarily personal or primarily to obtain education meeting the requirements of paragraph (c) or (d) of this section will depend upon all the facts and circumstances of each case An important factor in making the determination will be the relative amount of time devoted to personal activity as compared with the time devoted to educational pursuits Expenses in the nature of commuters fares are not business expenses and are not deductible

(g) The provisions of this section may be illustrated by the following examples

Example (1) A is employed as a bookkeeper by an accounting firm In order to advance in salary he takes courses in accounting and becomes a certified public accountant A's expenditures for such courses and for any transportation expenses and living expenses while away from home are not deductible

Example (2) A, a general practitioner of medicine, takes a course of study to become a pediatrician B, a general practitioner of medicine, takes a two-week 'refresher" type course reviewing developments in several specialized fields, including pediatrics, for the purpose of carrying on his general practice A s expenses are not deductible B's expenses (including any transportation expenses and living expenses while away from home) are deductible

Example (3) A, a teacher, is expressly required by the regulations of the State board of education either to read a list of books or take certain summer school courses to retain his employment A fulfills this requirement by taking the summer school courses The courses do not qualify A to advance substantially in earning capacity, salary, status or position A s expenses are deductible including transportation expenses and living expenses while away from home

Example (4) A a teacher, takes a summer school course which is required by his employer in order to retain his employment The course qualifies A to advance substantially in salary A s expenses are not deductible

Example (5) A, a self employed tax consultant decides to take a one-week refresher type course in taxation, which is offered in City X 500 miles away from his home His primary purpose in going to X is to take the course but he also takes a side trip to City Y (50 miles from X) for one day, takes a sightseeing trip while in X and entertains some personal friends at his hotel A s transportation and living expenses will be allocated between his educational pursuits and his personal activities Those expenses which are entirely personal such as entertaining friends will not be deductible to any extent

Example (6) The facts are the same as in example (5), except that A s primary purpose in going to City X is to take a vacation This purpose is indicated by the fact that he spends only one week attending the refresher" type course and devotes five weeks entirely to personal activities A s entire transportation expenses and living expenses while away from home be disallowed [Reg § 1 162-5]

CORPORATE PRACTICE OF MEDICINE GROUNDS FOR FORFEITURE OF PHYSICIAN'S LICENSE

The Texas State Board of Medical Examiners canceled the license of a doctor to practice medicine in the state of Texas[1] At the hearings before the Board and the District Court it was established that the doctor was employed by a clinic for a salary of $500 per month, he received no fees, the clinic was owned by an individual who was not a doctor of medicine, no doctor of medicine owned any interest in the clinic, the doctor performed medical services for the clinic, and the fees for such services were collected by the clinic

The statutes of Texas enumerate as a ground for denying, forfeiting, or revoking a license to practice medicine the permitting or allowing of another "to use his license or certificate to practice medicine in this state, for the purpose of treating or offering to treat sick, injured or afflicted human beings"

After disposing of certain questions concerning alleged procedural irregularities, the Civil Court of Appeals of Texas pointed out that it had never before been called on to determine whether conduct as above described fell within the purview of the statute and was therefore grounds for the revocation of a medical license Noting that there is an abundance of authority in other jurisdictions holding similar conduct to be contrary to statute, the court reviewed these cases and quoted from *U S vs American Medical Association*, 110 F (2) 703 as follows

> The practice of medicine in the District of Columbia is subject to licensing and regulation and, we think may not lawfully be subjected to commercialization and exploitation" As well said in *People vs United Medical Service* 200 N E 157 the practice of medicine requires something more than the financial ability to hire competent persons to do the actual work And so it has been held under varying conditions, speaking generally that where a corporation operates a clinic or hospital, employs licensed physicians or surgeons to treat patients and itself receives the fee the corporation is unlawfully engaged in the practice of medicine This is true because it has universally been held that a corporation as such lacks the qualifications necessary for a license and without a license, its activities become illegal It has also been said that the relationship of the doctor and patient, well recognized in the law would be destroyed by such practice

The court cites analogous cases relating to the practice of law by corporations and quotes from a Minnesota case that holds that neither a corporation nor a layman can practice law directly or indirectly by hiring a licensed attorney for the benefit of others or for the benefit or profit of such hirer On the weight of authority as applied to the undisputed facts of the case the Texas Civil Court of Appeals held that the conduct of the doctor was contrary to the statutes of Texas and was grounds for forfeiture of license The action of the Texas State Board of Medical Examiners canceling the license of the doctor to practice medicine in the state of Texas was sustained

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[1] *Rockett vs Texas State Board of Medical Examiners* 287 S W (2d) 190 (Texas 1956)

Effects of Cosmic Rays—The effect of cosmic rays on matter at high altitudes can broadly speaking be divided into two categories atomic and nuclear Atomic effects are produced by energetic cosmic ray particles which remove an electron from one of the electron shells of a target atom (the so-called ionization process) or lift an electron from a low lying level to a high level (the so-called excitation process) The process of ionization and excitation thus transfers energy to the atoms of the target matter which may be tissue metal or perhaps a semi-conductor like a transistor used in electronic equipment. The result may be to break chemical bonds in molecules or to join others in tissue for example because of the preponderance of water the main effect would be the production of H and OH radicals with a subsequent formation of H_2O These effects can be reproduced to a large extent in the laboratory They can also be expressed in terms of radiation dosages for which safe limits have been derived from experience Energetic cosmic ray particles at high altitudes, particularly protons neutrons, and nuclear pi-mesons can disintegrate nuclei with which they collide At sea level most of the cosmic radiation is made up of non-nuclear mu-mesons, which do not produce nuclear disintegrations Nuclear interactions occur roughly in the ratio of one to ten million compared to atomic interactions However, they are also a million times more energetic In a nuclear disintegration the incoming cosmic ray particle uses up a portion of its kinetic energy (which may be of the order of several Bev or billion electron volts) to break the bonds between protons and neutrons inside the nucleus A number of these may be ejected either singly i e as protons or neutrons or in combinations as deutrons tritons He^3 or He^4 nuclei and even heavier fragments The remaining nucleus will have a number of protons and neutrons given by the initial number minus those knocked out e g an iron nucleus consisting of 26 protons and 30 neutrons may end up as chlorine In these nuclear disintegrations part of the kinetic energy of the primary radiation is transformed into matter occasionally in the creation of pi-meson particles The protons neutrons and pi mesons will leave the nucleus with large energies of the order of millions of electron volts They will produce atomic effects just like the cosmic ray primaries The production of secondaries by the primaries, therefore leads to an enhancement of the total ionization This explains why the ionization at altitudes of from 50,000 to 75 000 feet is greater than it is at the top of the atmosphere where only the primary radiation itself is effective —S F Singer Ph D Cosmic Ray Effects on Matter at High Altitudes, *The Journal of Aviation Medicine* April 1956

MEDICAL NEWS

CALIFORNIA

Health Education Workshop —Sponsored by 10 San Diego County agencies, the fifth annual Health Education Workshop will be held at San Diego State College, Aug 6-17 Designed for students, teachers, school administrators, school nurses, physicians, and others interested in school health, the workshop will consider methods and techniques of education in health for all grades and for the health instruction program in such related areas as social studies, science, and physical education Fred V Hein, Ph D, consultant in school health, Bureau of Health Education, American Medical Association, will serve as one of the consultants to the workshop Tuition fees for the two-week course will be $17, and two units of upper division credit may be earned Information may be obtained from Miss Angela Kitzinger, Chairman, Health Education Department, San Diego State College, San Diego 15

Symposium on Heart Disease —The Los Angeles County Heart Association will conduct its 26th annual Professional Symposium on Heart Disease Oct 10-11 at the Wilshire-Ebell Theater Daily sessions will be held from 9 30 a m to 12 noon and from 1 45 p m to 5 30 p m An evening panel on atherosclerosis and arteriosclerosis Wednesday will have as collaborators Dr David Barr, New York, Dr Meyer W Friedman, San Francisco, Dr John W Gofman, Berkeley, Ancel B Keys, Ph D, Minneapolis, Dr William Likoff, Philadelphia, and Dr Jeremiah Stamler, Chicago Dr Likoff will lead the discussion and open forum on surgery of acquired cardiovascular disease, and Dr Bernard Lown of Boston and Dr Friedman will present papers on digitalis therapy in management of therapeutic problems Investigators and clinicians who wish to present papers on the aforementioned subjects should send their manuscripts to the Los Angeles County Heart Association no later than Aug 1

Personal —Dr Raymond E Stannard, formerly of Morro Bay, is serving as chief health adviser of the U S Operations Mission in Kathmandu, Nepal ——Dr Romeo J LaJoie, Los Angeles, has been named a fellow of the Royal College of Physicians of Edinburgh, Scotland ——The Howland medal and award of the American Pediatric Society were recently bestowed on past-president Dr Harold K Faber, emeritus professor of pediatrics, Stanford University School of Medicine, Stanford University, San Francisco Dr Faber is a former president of the San Francisco County Medical Society ——Dr Graham Gilmer, Orange, was recently honored with a P T A life membership in recognition of his work for youth Dr Gilmer is active in Boy Scout and Y M C A work, having served as camp physician at Camp Osceola for several years ——Dr Harry N March, Grass Valley, recently sailed for the Island of Tahiti, where he will fill a three-year appointment to the staff of the Filariasis Institute, which is conducted by the University of California at Los Angeles School of Medicine as a research project in tropical diseases ——Dr James H Wagner was recently honored by the Selma Masonic Lodge in observance of the 50th anniversary as a past-master of the organization

ILLINOIS

Scholarships in Nursing —Dr Otto L Bettag, director of the state department of public welfare, announces that about 200 nursing school scholarships will be awarded for the fall term of 1956 They are available for beginning students in nurse's training for a period of three years, two-year scholarships for second-year student nurses, and one-year scholarships for third-year or senior student nurses Also, these scholarships are open to students for the last three years of a college or university degree program in the field of nursing The applicant must be a high school graduate between the ages of 17 and 35, a citizen of the United States, a resident of Illinois, and qualified for admission to any one of the 72 approved schools of nursing in Illinois Scholarships include tuition, fees, books, and uniforms, and a monthly stipend of $30 to first-year students, $40 to second-year students, and $50 to third-year students Successful candidates will be obligated to accept employment at full salary as staff nurses in one of the hospitals of the Department of Public Welfare on a basis of one year of employment for each year in school on the scholarship For information write or call Nursing Service, Illinois Department of Public Welfare, 403 State Office Bldg, 400 S Spring St, Springfield (Phone Springfield 6611—Extension 464), or Nursing Service, Illinois Department of Public Welfare, 1500 State Office Bldg, 160 N LaSalle St, Chicago 1 (Phone FInancial 6-2000—Extension 624, 625)

Chicago

Edith Potter Named Professor of Pathology —Dr Edith L Potter, who has been affiliated with the University of Chicago since 1934, has been elevated to professor of pathology in the department of obstetrics and gynecology in the school of medicine Dr Potter was president of the Chicago Pathological Association in 1946-1947 Her book, "Fundamentals of Human Reproduction," was published in 1947

Dr Arey Honored —At the faculty-alumni reunion dinner of Northwestern University Medical School, May 12, a portrait of Leslie B Arey, Ph D, was unveiled and presented as a tribute from his colleagues and former students Dr Arey, who has been a faculty member at Northwestern for 41 years, is author of a textbook on embryology, "Developmental Anatomy" He retired at the close of the current school year as chairman of the department of anatomy but will continue in teaching and research capacities Dr Arey has served as president of the American Association of Anatomists, vice-president of the Chicago Academy of Sciences, and secretary and treasurer of the American Society of Zoologists He was chairman of the White House conference on child health and protection and has been associate editor of *Excerpta Medica* and *Journal of Morphology*

LOUISIANA

Professors Appointed —The Tulane University of Louisiana School of Medicine, New Orleans, has named as full professors Dr Clifford G Grulee Jr, associate professor of pediatrics, presently serving as director of the division of graduate medicine and assistant dean of the medical school, and Arthur O Kastler, Ph D, associate professor of biochemistry

Society News —Newly elected officers of the New Orleans Graduate Medical Assembly include Dr Eugene H Countiss, president, Dr Charles L Brown, president-elect, Dr Edwin L Zander, first vice-president, Dr C Barrett Kennedy, second vice-president, Dr Joseph N Ane, third vice-president, Dr Maurice E St Martin, secretary, and Dr Ralph M Hartwell, treasurer

Personal —Dr Vann E Spruell, who is associated with the Tulane University of Louisiana School of Medicine, New Orleans, has been appointed psychiatrist for the Calcasieu Area Guidance Center in Lake Charles ——Dr Ralph V Platou, head, department of pediatrics, Tulane University of Louisiana School of Medicine, New Orleans, left in June on a four-month trip to eight European countries He planned to participate in the International Congress of Pediatrics at Copenhagen in July Dr Platou was recently awarded a grant by the Rockefeller Foundation to evaluate methods of training in pediatrics abroad In his capacity as secretary of the American Board of Pediatrics, he will be concerned with postgraduate programs and with content and methodology of examinations for certification in his specialty, particularly in Swedish and English centers

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting

MASSACHUSETTS

Dr Aub Retires—Dr Joseph C Aub professor of research medicine and chairman department of medicine, Harvard Medical School, and director of the school s laboratories in the Collis P Huntington Memorial Hospital Boston, retires this summer and will become professor of research medicine emeritus Dr Aub is a special consultant for the National Cancer Institute and a medical consultant to Palmer Memorial Hospital Beth Israel Hospital, the Massachusetts Eye and Ear Infirmary Boston, and the South County Hospital Wakefield, R I

NEBRASKA

Five Department Chairmen Appointed.—The University of Nebraska College of Medicine, Omaha announces the appointment of five new department chairmen Dr Gordon E Gibbs was promoted to professor and chairman of the department of pediatrics Dr Herman M Jahr retiring chairman, will retain his duties as professor of pediatrics Dr Robert L Grissom, professor of internal medicine, was named chairman of the department. Dr Willson B Moody, retiring chairman, will retain his duties as professor Dr Merle M Musselman professor of surgery, was selected as chairman of that department. Dr Herbert H Davis, retiring chairman, will continue as professor of surgery Dr Roy G Holly, professor of obstetrics and gynecology was designated chairman of that department. Dr Leon S McGoogan retiring chairman, will remain as professor of obstetrics and gynecology Dr Frank J Klabenes, associate professor of otorhinolaryngology, has been appointed chairman of the department of otorhinolaryngology Dr J Calvin Davis Jr retiring chairman, was recently appointed senior consultant

NEW YORK

Bell Professorship Provided by Gift.—Hermann Rahn, Ph D associate professor and vice-chairman of the department of physiology at the University of Rochester School of Medicine and Dentistry, has been named Lawrence D Bell Professor of Cardiovascular Research in Physiology and head of the department of physiology in the University of Buffalo School of Medicine The Bell professorship was made possible by a gift of $75,000 from the Bell Foundation to the medical school through the cooperation of the Western New York State Heart Association early in 1955 The gift, named for Lawrence D Bell, president of the Bell Foundation and the Bell Aircraft Corporation provides $10,000 a year for five years toward Dr Rahn s salary and $25,000 to equip his research laboratory

Children s Hospital Expanded—The $3 800,000 wing of the Children s Hospital in Buffalo has been opened The nine-story structure constitutes the largest part of the over-all $4,500,000 building program started Aug 21, 1953 Glass partitions have been used wherever possible in order to provide the maximum amount of light, to expedite nursing care, and to enable children to see others so that they feel less alone. Oxygen and suction are piped to most of the pediatric beds The ninth floor, reserved for contagious cases has sliding partitions to permit opening up a single unit into a larger space to be shared by patients with the same disease its own x-ray unit, and a combination treatment-operating room Half of the sixth floor is occupied by the Sister Elizabeth Kenny Foundation The fifth floor is entirely semiprivate and the fourth floor has 24 private rooms Surgical and orthopedic patients receive care on the third floor, where there is a large playroom The second floor is entirely surgical. The main floor has the air-conditioned Kinch Auditorium, the Emily Foster Memorial Medical Reference Library, and an occupational therapy department designed to resemble a small village

Personal—Governor Averell Harriman has appointed Dr Donald G Anderson, Rochester, a member of the board of visitors of the Roswell Park Memorial Institute to fill the vacancy caused by the death of Dr Eldridge H Campbell Jr—Dr Alva G McCord, Albany has been given the second annual Judson College Alumni award Dr McCord, the widow of Dr Clinton P McCord, has served on the faculty of Judson College in Marion Ala, Wellesley (Mass) College, and several other colleges—Dr Louis E Gaeta, Jackson Heights was recently elected state medical officer of the Department of New York Catholic War Veterans Dr Gaeta, who is on the staff of Flushing Hospital and Dispensary, served with the U S Army five years, three in the European Theater of Operations.—Dr W Brandon Macomber, associate professor and head, subdepartment of plastic surgery and Dr Mark K Wang assistant clinical professor of plastic surgery, Albany Medical College of Union University, recently presented "Congenital Deformities of the Lips" before the American Association of Plastic Surgeons in Toronto, Canada—Dr Joseph K. Hill assistant to the dean of the State University of New York College of Medicine at Syracuse, has been named executive secretary of the university s Downstate Medical Center in Brooklyn Dr Hill will also hold the title of associate professor of medical administration

New York City

Bequest to Hospital—Lenox Hill Hospital recently received $650 000 from the estate of Dr Max Einhorn who died Sept 25 1953 Under the terms of the will income from the gift is to be used for research in the field of gastroenterology especially with a view to refining the methods of diagnosis and treatment developed by Dr Einhorn Income from the gift will be used also to maintain the Max and Flora Einhorn Building donated by Dr Einhorn in 1937 which includes an auditorium and wards for patients with gastroenterological ailments

Clinic for Adolescents—The Roosevelt Hospital opened on April 11 an adolescent clinic to augment its psychiatric outpatient services, which have been providing care for children and adults since 1949 Dr Robert W Laidlaw is chief of the psychiatric service The adolescent clinic hours, 4-6 p m each Wednesday, were chosen to prevent interference with the adolescents school program Referrals to the clinic will be made principally by other clinics, hospitals and agencies in the community and will be restricted to residents of the Roosevelt Hospital district.

Burmese Team to Train at Rehabilitation Institute—Through a grant of $30,000 provided by the Rockefeller Foundation, a team of Burmese physicians nurses therapists, and psychiatrists will receive a year s training at the Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, under the direction of Dr Howard A Rusk and his staff The project is the result of inspection of the institute last year by Burmese Prime Minister U Nu At the conclusion of their studies in June 1957 the team will return to Burma and establish a rehabilitation center

NORTH CAROLINA

Distinguished Service Awards—At a meeting of the alumni of the University of North Carolina School of Medicine Chapel Hill distinguished service awards were bestowed on the following physicians, none of whom are alumni of the university

John Stuart Gaul, Charlotte " past president of the North Carolina Orthopaedic Association and a pioneer in establishing crippled children clinics in North Carolina As secretary and member of the advisory committee of the State Medical Society appointed to work with the Medical Care Commission, he gave of his time and talents toward the realization of the Medical Care program

Hamilton Witherspoon McKay Charlotte "Trustee of Davidson College and of Union Theological Seminary As chairman of the State Medical Society s committee to work with the North Carolina Medical Care Commission during the crucial and formative years his wise leadership of a courageous and farsighted group of men played a decisive role in the implementation of the State s Good Health Program "

James Bell Bullitt, Chapel Hill Professor of Pathology at the University of North Carolina from 1913 to 1948 and since then emeritus Scholar scientist and friend, dear to the hearts of two generations of alumni, many of whose careers he has guided and all of whose lives he has enriched."

George Grady Dixon, Ayden, A devoted country doctor and community leader Tireless worker for better health for the people of North Carolina as a member of the North Carolina State Board of Health since 1931 and, since 1949 its president."

J Street Brewer Roseboro "Dedicated physician, past president of the Medical Society of the State of North Carolina past member of North Carolina Board of Medical Examiners, member of North Carolina Medical Care Commission since 1947 A loyal friend of this institution who had the wisdom to seek superb medical training and the humility to give his service and himself for the physical, emotional and intellectual betterment of his fellow North Carolinians."

OHIO

Dr Page Honored –Dr Irvine H Page, director of research at the Cleveland Clinic since 1945, was awarded an honorary doctor of laws degree by John Carroll University, Cleveland, at the university's commencement exercises, June 11 Dr Page, who is president of the American Heart Association, has served as director of chemical research at the Kaiser Wilhelm Institute, Munich, Germany, associate member of the Rockefeller Institute for Medical Research, and director of the Lilly Laboratory for Clinical Research at the Indianapolis City Hospital

Columbus Now Has Full-time Chief Physician –Dr Frank H Herrington has been appointed as the first full-time chief physician for the city of Columbus He will supervise the recently established health program for municipal employees Dr Herrington served in the Navy as medical officer to the U S Embassy at Chungking from 1943 to 1945 and remained in China with the medical division of the United Nations Relief and Rehabilitation Administration until 1947 Following graduate study in London, he served as industrial medical officer for the Asiatic Petroleum Company in Iraq and Syria

OKLAHOMA

Annual Clinic Symposium –The McAlester Clinic and McAlester Clinic Foundation will present their second annual symposium Aug 4-5 under the joint sponsorship of the clinic and the department of postgraduate medicine, University of Oklahoma School of Medicine, Oklahoma City Eight hours of category 1 credit will be allowed by the American Academy of General Practice The Saturday afternoon session will include presentations on pediatric aspects of trauma, chest injuries, eye injury and infection, head injuries, burns, and fractures of the elbow in children It will close with a panel discussion on cardiovascular disease A social hour at the McAlester Country Club will precede the dinner at which Dr Malcom E Phelps, El Reno, will be guest speaker Sunday at 8 a m there will be a golf tournament at the McAlester Country Club and fishing at McAlester Lakes A clinical session is scheduled for 9 45 a m, as is a cinema clinic At 10 a m a film on heart disease will be presented, at 10 45 a m a film on diagnosis of acute abdominal problems, and at 11 45 a m a film on bronchoscopy and chest anatomy management The afternoon session will be devoted to papers on malignancy and will close with a panel on massive upper gastrointestinal tract hemorrhage

TENNESSEE

Center for Children with Cerebral Palsy –The University of Tennessee College of Medicine, Memphis, announces that construction will begin soon on the $159,500 Les Passees Diagnostic and Treatment Center for Cerebral Palsied Children at Court and Dunlap A portion of the construction funds was provided by the Women s Philanthropic Organization, the remainder will come from the U S Public Health Service s Hill-Burton Act Fund The federal grant for the one-story center was made to the college of medicine, which will give Les Passees a 99-year lease to operate

Personal –Dr Robert A Davison, head, department of general practice, University of Tennessee College of Medicine, Memphis, was invited to present a paper at a special session of the British Medical Association in Brighton, England, July 9-13, on what the university is doing to train general practitioners —Dr F Thomas Mitchell, chief, division of pediatrics, University of Tennessee College of Medicine, Memphis, has been named a distinguished alumni member of the university's chapter of Alpha Omega Alpha Dr Mitchell has practiced pediatrics in Memphis since 1917 and since 1947 has been professor and chief of the department of pediatrics

WASHINGTON

Society News –The Inland Empire division of the lay society of the Washington State Diabetes Association was recently organized to disseminate information concerning new developments in diabetes, to assist in educating diabetics and their families in treatment and care, and to obtain summer camp facilities for diabetic children Drs O Charles Olson, Spokane, Robert Berghan, Spokane, and Robert L. Picken Jr, Opportunity, have been appointed medical advisors for the group

Medical School Receives Legacy –A legacy valued at nearly $60,000 has been accepted for research in the University of Washington School of Medicine, Seattle Mr Herman C Stuht, retired Seattle real estate man, left the estate to the Seattle First National Bank with the provision that it be given to 'a scientific or medical organization which is studying and seeking the cause of and remedy for human mental sickness, particularly incident to the aged " The bank, as trustee selected the university to receive the bequest

WISCONSIN

University News –Walter E Sullivan, Ph D, head of the anatomy department, University of Wisconsin, Madison, for 25 years, has retired after 36 years of teaching

Research in Muscular Dystrophy –The University of Wisconsin hospitals are undertaking a program of clinical research to diagnose and evaluate cases of muscular dystrophy Dr Henry A Peters, assistant professor of neurology and psychiatry, University of Wisconsin Medical School, Madison, is director of the program, which is supported by the Muscular Dystrophy Associations of America Dr Peter L Eichman, assistant professor of neurology and internal medicine at the medical school, is assistant director Consultants are Dr Harry D Bouman, professor of physical medicine, Dr Clinton N Woolsey, professor of neurophysiology, and Dr Hans H Reese, chairman of the department of neuropsychiatry, who is also a member of the medical advisory board of the association

Diabetes Summer Camps –For the second year, the Milwaukee Lay Society and the clinical society of the Wisconsin Diabetes Association are sponsoring summer camps for diabetic children The Milwaukee Boys' Club camp (July 23-Aug 4) is at Lake Keesus The girls camp will be at Camp Sidney Cohen on Lake Nemahbin, Aug 16-30 The camps are available to all diabetic youngsters aged 8 to 16 in the state A registered nurse trained in the care of the diabetic and a dietitian to supervise meals attend the camping sessions with the children A physician member of the Wisconsin Diabetes Association makes a daily visit to check on insulin requirements Insulin is furnished free at the camp Partial financial assistance is provided, campers are required to pay only as much as their parents are able to afford of the $30 fee for boys and the $42 50 for girls If necessary, transportation to and from the camp is furnished Information on the camps may be obtained from Mrs Donald Turek at COncord 4-8890

WYOMING

Camp for Crippled Children –The Wyoming Society for Crippled Children and Adults will hold its first Easter Seal Summer Camp for Crippled Children at the Fremont County Youth Camp, near Lander, Aug 12-25 The committee for the selection of children will be composed of representatives from the state departments of public health, education, and welfare, as well as members of the Wyoming society Referrals to the committee may be made by schools, parents, and county agencies Children must be able to care for their own day-by day self-help activities and have sufficient muscular strength to participate in normal activities, sufficient skill in donning or removing own prosthesis or appliances, and awareness of physical abilities and limitations and of social responsibilities Children with heart conditions, visual or hearing defects, and emotional problems cannot qualify The camp fee will be about $45 Inquiries may be directed to Easter Seal Summer Camp, Box 1088, Thermopolis

ALASKA

Oto-Ophthalmologic Clinic –The Alaska Native Health Service Hospital in Anchorage has opened the first clinic for eye, ear, nose, and throat ailments among the Eskimos Dr Milo H Fritz, Anchorage, immediate past-president of the Alaska Territorial Medical Association, will direct the new department, which will serve both inpatients and outpatients

GENERAL

English Language German Medical Journal—The recently launched English language *German Medical Monthly* contains original articles in addition to translations of articles appearing in the weekly *Deutsche medizinsche Wochenschrift* It is distributed in the United States by the Intercontinental Medical Book Corporation, 381 Fourth Ave, New York 16 Sample copies are available on request

Booklet on Coronary Atherosclerosis—The American Heart Association has issued a 16-page booklet for cardiac patients entitled, Heart Disease Caused by Coronary Atherosclerosis," by Dr Paul Dudley White Boston Copies of this revised edition of an earlier pamphlet by Dr White, first issued in 1950 may be obtained by heart patients, physicians and others on request to local heart associations

Grant for Smog Research—A contribution of $125 000 has been made by the nation s motor vehicle manufacturers in support of the 1956 research program of the Air Pollution Foundation, 704 S Spring St Los Angeles 14 The grant, which represents a 25% increase over the automotive industry s 1955 contribution, brought to $280,000 the total financial support the foundation had received from the auto manufacturers during the past three years

Goodwill Award—The 1956 Goodwill Award, given annually by Goodwill Industries of America, Inc for outstanding service to handicapped people, was presented to Mr Donald V Wilson, LL B, secretary-general of the International Society for the Welfare of Cripples on June 23 Under his administration the International Society for the Welfare of the Crippled has grown to include 22 affiliated national organizations in as many countries He has served as chairman of an international conference called by the United Nations to plan improved services for handicapped people and has arranged international conferences of his organization for this purpose

Awards in Gerontology—The Ciba Foundation for the Promotion of International Cooperation in Medical and Chemical Research (41 Portland Pl, London W 1) announces that not less than five awards, of an average value of £300 ($843), will be made in 1957 for experimental research into basic problems of aging The announcement of awards will be made in July, 1957, and preference will be given to younger workers The work submitted should not have been published before May 31, 1956, though it may have been under consideration for publication at that date Papers (not more than 7,000 words) must be received not later than Jan 31, 1957, by G E W Wolstenholme, Director and Secretary to the Executive Council of the foundation

Lalor Faculty Research Awards—Under its program of Faculty Summer Research Awards in the Biological Sciences, the Lalor Foundation announces 12 awards in general physiology, 5 in genetics, 4 in cytochemistry and microbiology 3 in insect physiology, 2 each in comparative biochemistry, embryology, and endocrinology and one in ecology and 10 awards in the botanical sciences (8 in plant physiology and 2 in mycology) The average award is about $1,100 Most of the appointments are at the assistant professor and instructor level Most of the candidates for awards are holding their first academic appointment Announcement will be made in October, 1956 regarding the next series of college and university faculty awards for research in the biological sciences to be offered for the summer of 1957

Albert C Snell Memorial Lectureship—As a tribute to the late Dr Albert C Snell, a memorial fund has been established which has as its purpose the sponsoring of an annual lectureship in ophthalmology Dr Snell who had served as president of the Monroe County (N Y) Medical Society, was the first ophthalmologist appointed to the Strong Memorial-Rochester Municipal Hospitals and the first lecturer in ophthalmology at the University of Rochester School of Medicine and Dentistry Dr Algernon B Reese of the Institute of Ophthalmology, Columbia University New York delivered the first of the memorial lectures on "Pigmented Lesions of the Conjunctiva" Contributions to the memorial may be sent to the Albert C Snell Memorial Fund, Inc, c/o Rochester Academy of Medicine 1441 East Ave Rochester 10, N Y

Berman-Hadassah Microchemical Equipment Fund—Announcement is made of the establishment of the Dr Shimon Berman-Hadassah Hospital Microchemical Equipment Fund, affiliated with the Phi Delta Epsilon Foundation of Chicago The Foundation has obtained permission to ship taxfree equipment for micromethods, which include colorimeter flame photometer pH meter, microcentrifuge, and micropipettes at a cost of about $1,500, to Dr Berman, chief of pediatrics, Hadassah Hospital, Jerusalem, Israel, who for 30 years has served the sick infants and children of immigrants His special problem relates to infants debilitated and dehydrated by persistent diarrhea The foundation seeks contributions to aid in their care and rehabilitation Tax-deductible contributions should be made to the S Berman-Hadassah Hospital Fund and mailed to the Treasurer, Phi Delta Epsilon Foundation, 109 N Wabash Ave, or to one of the committee members Dr Isadore Pilot, Chicago chairman, Dr Nathan S Zeitlin, Chicago, Dr Samuel J Hoffman, Chicago, or Dr Louis A Eshman, Los Angeles

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

	June 30 1956		July 2 1955
Area	Paralytic Type	Total Cases Reported	Total
New England States			
Maine			
New Hampshire			
Vermont			
Massachusetts			1
Rhode Island			
Connecticut			5
Middle Atlantic States			
New York	7	13	25
New Jersey	4	6	5
Pennsylvania		1	10
East North Central States			
Ohio		2	22
Indiana		2	3
Illinois	10	21	10
Michigan	2	10	9
Wisconsin	1	5	9
West North Central States			
Minnesota	1	2	2
Iowa		1	10
Missouri	4	8	4
North Dakota		1	3
South Dakota		1	
Nebraska	No report	No report	3
Kansas	4	4	2
South Atlantic States			
Delaware			1
Maryland	2	2	3
District of Columbia		1	1
Virginia	4	6	8
West Virginia			3
North Carolina	1	2	8
South Carolina		2	6
Georgia		3	[illegible]
Florida	5	17	10
East South Central States			
Kentucky			3
Tennessee		2	3
Alabama		2	8
Mississippi	1	[illegible]	9
West South Central States			
Arkansas	1	2	5
Louisiana	16	20	17
Oklahoma	1	[illegible]	4
Texas	28	41	43
Mountain States			
Montana	3	3	2
Idaho	1	1	8
Wyoming	1	2	1
Colorado	3	5	6
New Mexico		1	10
Arizona			[illegible]
Utah		2	2
Nevada			6
Pacific States			
Washington		1	4
Oregon			3
California	22	50	[illegible]
Territories and Possessions			
Alaska			
Hawaii			1
Puerto Rico	3	3	9
Total	125	[illegible]	[illegible]

Society News —Newly elected officers of the **Society for Investigative Dermatology** include Dr Maximilian E Obermayer, Los Angeles, president, and Dr Rudolf L Baer, New York, vice-president —The **American Academy of Tuberculosis Physicians** recently elected Dr Rupert C L Markoe, Detroit, president, Dr Louis M Barber, Murphys, Calif , first vice-president, Dr Zoltan Galambos, Chicago, second vice-president, and Dr Oscar S Levin, Denver, secretary —The **American Therapeutic Society** recently elected Dr Gerald H Pratt, New York, president, Dr Austin E Smith, Chicago, first vice-president, Dr Dale P Osborn, Cincinnati, second vice-president, Dr Richard T Smith, Philadelphia, third vice-president, Dr Oscar B Hunter Jr , Washington, D C , secretary, and Dr Joseph A Davis, Chicago, treasurer —The **American Gastroscopic Society** recently elected Dr John Tilden Howard, Baltimore, president, Dr Clifford J Barborka, Chicago, vice-president, and Dr C Wilmer Wirts, Philadelphia secretary-treasurer —The **American College of Chest Physicians** recently named Dr Burgess L Gordon Philadelphia, president-elect, Dr Donald R McKay, Buffalo, first vice-president, Dr Seymour M Farber, San Francisco, second vice-president, Dr Charles K Petter, Waukegan, Ill , treasurer (reelected), and Dr Albert H Andrews, Chicago, assistant treasurer (reelected) Dr Herman J Moersch, Rochester, Minn , took office as president —At the 36th annual meeting of the **Planned Parenthood Federation of America** at the Waldorf-Astoria, New York, Drs Jed W Pearson of the George Washington University School of Medicine, Washington, D C , and Abraham Stone, New York, director of the Margaret Sanger Research Bureau, participated in a panel, 'Education for Marriage,' which was moderated by Dr Alan F Guttmacher, director of obstetrics and gynecology at Mount Sinai Hospital, New York The panel featured the introduction of a new federation guide, written by Dr Stone, for its affiliates on development of marriage education programs —The **International Society for the Welfare of Cripples** has sent to Dr Wiktor Dega, professor of orthopedic surgery at Poznan (Poland) University, a new documentary motion picture 'Still Going Places,' filmed in New York City, showing practical ways of treating elderly invalids Dr Dega is known throughout Europe for his work in rehabilitating crippled victims of World War II Produced at the Home for Aged and Infirm Hebrews in New York through a grant from Chas Pfizer & Co , Inc , the film recently was awarded the Certificate of Merit in the medical and nursing competition at the Cleveland Film Festival, where the Pfizer film, Dynamics of the Tubercle," won first award —At a meeting preceding the annual session of the **American College of Physicians**, representatives of state societies of internal medicine completed arrangements for the formation of the **American Society of Internal Medicine** Specialists in the practice of internal medicine from 20 states were present at the organizational meeting Officers and committee members who will serve as an interim committee include Drs Lewis T Bullock, Los Angeles, chairman, Claude P Callaway, San Francisco, secretary-treasurer, and Clark C Goss, Seattle, chairman of the subcommittee on bylaws National headquarters for the current year will be at San Francisco, present headquarters of the **California Society of Internal Medicine**

Postgraduate Courses in Anesthesiology —The American Society of Anesthesiologists (188 W Randolph St , Chicago), has available a 32-page booklet describing opportunities in each state for postgraduate education in anesthesiology for 1956 The types of postgraduate training include residencies, special training programs, individually arranged clinical courses, refresher courses, and other instructional activity Among the many items listed are a didactic refresher course at the University of Arkansas School of Medicine, Little Rock (October and November), designed for physicians with little or no training in anesthesiology, clinical and didactic courses at St Francis Hospital, Hartford, Conn (two to three months, available September), designed for physicians with little or no training in anesthesiology, the triyearly meeting of the Kentucky Society of Anesthesiologists in Louisville (Sept 15), open to members and invited guests of the society, a graduate course of one year's duration, beginning Sept 8, at the New York University Post-Graduate Medical School (550 First Ave , New York 16), and a three months didactic course consisting of weekly seminars and demonstrations (Sept 1) at the Tacoma General Hospital and Pierce County Hospital, Tacoma, Wash , designed for physicians with little or no training in anesthesiology Many of the courses offered in the booklet may be arranged at the convenience of the applicant

FOREIGN

Congress of Chest Physicians —The fourth International Congress on Diseases of the Chest of the American College of Chest Physicians in Cologne, Aug 19-23 (THE JOURNAL, April 7, 1956, page 1246), will discuss the following subjects Coronary Diseases of the Chest, Industrial Diseases of the Chest, Virulence and Resistance under Chemotherapy of Pulmonary Tuberculosis, Pulmonary Function, Cardiac Function, and Tumors of the Mediastinum Participants from the United States will include Drs Jeremiah Stamler, Chicago, Claude S Beck, Cleveland Houck E Bolton, Philadelphia, Andrew L Banyai, Wauwatosa, Wis Jay A Myers, Minneapolis, Maurice S Mazel Chicago Benjamin L Gordon, Ventnor, N J , and Richard H Overholt, Boston For information write Sekretariat des 4 Internationalen Kongresses "American College of Chest Physicians, Koln Deutz, Messeplatz, Germany

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Various Centers September 4-5 (Part I) *Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made New candidates should apply by formal registration, registered candidates may notify the board indicating desired location date and candidate number* Ex Sec Dr John P Hubbard 133 South 36th St Philadelphia 4

BOARDS OF MEDICAL EXAMINERS

ILLINOIS *Examination and Reciprocity* Chicago Oct 9-11 Supt of Regis Mr Frederic B Selcke, Capitol Building Springfield

LOUISIANA *Homeopathic* Subject to call Sec Dr F H Hardenstein 803 Pere Marquette Bldg New Orleans 12

MONTANA *Examination and Reciprocity* Helena Oct 2-3 Sec , Dr S A Cooney 7 West 6th Ave Helena

NEW HAMPSHIRE *Examination and Reciprocity* Concord Sept 12 13 Sec , Dr John S Wheeler 107 State House, Concord

OHIO *Endorsement* Columbus, Aug 28 and Oct 2 *Examination* Columbus Dec 18-20 Sec Dr H M Platter 21 W Broad St Columbus 15

TEXAS * *Examination and Reciprocity* Fort Worth Dec 6 8 Applications for examination must be on file at least ten days prior to the meeting date and applications for reciprocity must be complete and on file at least thirty days prior to the meeting date Sec Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2

WEST VIRGINIA *Reciprocity* Charleston July 20 Sec. Dr N H Dyer State Office Bldg No 3, Charleston

ALASKA * On application in Anchorage Fairbanks Juneau and other towns Sec Dr W M Whitehead 172 South Franklin St Juneau

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA *Examination* Washington Oct 22 23 Deputy Director Mr Paul Foley 1740 Massachusetts Ave N W Washington

OKLAHOMA *Examination and Reciprocity* Oklahoma City Sept 28-29 Sec. Dr E F Lester 813 Braniff Bldg Oklahoma City

OREGON *Examination* Portland, Sept 8 and Dec 1 Dr Earl M Pallett Sec. State Board of Higher Education Eugene

RHODE ISLAND *Examination* Providence Aug 29 Administrator of Professional Regulation Mr Thomas B Casey, 366 State Office Bldg Providence

TEXAS *Examination* Austin October Sec , Bro Raphael Wilson 407 Perry-Brooks Bldg Austin

WISCONSIN *Examination* Madison, Sept 21 *Final date for filing application is Sept 13* Sec , Dr W H Barber 621 Ransom St Ripon

ALASKA *Examination and Reciprocity* Anchorage and Juneau first week of February, April, June, August and November Sec , Dr C Earl Albrecht, Box 1931, Juneau

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*Basic Science Certificate required

GOVERNMENT SERVICES

SECRETARY OF DEFENSE

Interagency Health Advisory Board—The Office of Defense Mobilization has announced the establishment, effective May 31, of the Interagency Health Advisory Board, the primary function of which is to advise the director of Defense Mobilization on interagency problems in planning for defense mobilization purposes for the utilization and control of health resources, including professional and auxiliary health manpower, health supplies and equipment and health facilities" The board, the head of which will be Dr Howard A. Rusk, chairman, Health Resources Advisory Committee, Office of Defense Mobilization, comprises representatives from the Departments of Defense, Army, Navy, Air Force, and Health, Education, and Welfare, the Federal Civil Defense Administration, and the Veterans Administration

AIR FORCE

General Benson Appointed to School of Aviation Medicine—Brig Gen Otis O Benson Jr will again become commandant of the School of Aviation Medicine at Randolph Air Force Base Texas, on Sept. 1, succeeding the late Brig Gen Edward J Kendricks For the last three years General Benson has been on duty at Air Force headquarters in Washington, D C In a press release, the School of Aviation Medicine said one reason for the reassignment of General Benson may be the impending construction of a new headquarters for the school, as he was chairman of the planning board when the idea first took shape seven years ago It was announced recently by Representative Kilday of Texas, a member of the House Armed Services Committee, that all government agencies concerned with the project have approved it. The proposed 9-million-dollar institute would provide a vastly improved plant in which to carry on teaching and research activities, although it will have no clinical facility for the observation and treatment of ailing flyers General Benson was surgeon of the 15th Air Force in Africa and Italy and surgeon of the Army Air Forces in the Mediterranean area during World War II and was head of the research division in the Air Surgeon s Office before taking command of the School of Aviation Medicine in 1949 For his contribution to aeromedical research he received the John Jeffries award of the Institute of the Aeronautical Sciences in 1951 and the Lyster award of the Aero Medical Association in 1955 He is a member of the National Board of Medical Examiners and a past-president of the Aero Medical Association

Graduating Class Addressed by Dr Tillisch—At the commencement exercises at Randolph Air Force Base, Texas June 21, Dr Jan H Tillisch of Rochester Minn, addressed the graduates comprising 10 Air Force surgeons who took the advanced course at the school 36 Air Force medical officers 11 Army medical officers 18 surgeons of foreign air forces, and a civilian physician from an aircraft plant Dr Tillisch is president of the Aero Medical Association and medical director of Northwest Airlines Col Herbert M West Jr, chief of staff of the Air University of which the School of Aviation Medicine is the medical branch, awarded the diplomas

Visit to the Far East—In June Col Patrick H Hoey M C, U S A. F chief, medical liaison and selection division, Office of the Surgeon General visited most of the bases in Japan, Okinawa, the Philippine Islands, and Hawaii, discussing with medical personnel provisions of the Medical Career Incentive Act concerning medical and dental careers in the Air Force

Internship Program in Air Force Hospital—The A M A. Internship Review Committee recently recommended to the Council on Medical Education that the internship program of the U S Air Force hospital at Lackland Air Force Base, San Antonio Texas, be approved The Council concurred in this recommendation and the hospital was approved for the training of 24 interns on a rotating service Present plans call for the initiation of this program July 1, 1957, by which time the new hospital at Lackland will be completed and in use

VETERANS ADMINISTRATION

Treatment of Mental Patients—Discharges of former chronically ill mental patients, now treated with tranquilizing drugs increased 36% at the Northampton (Mass) Veterans Administration Hospital, according to a recently released survey In the last six months of 1954 when few patients were treated with tranquilizing drugs (chlorpromazine and reserpine), the hospital reported 86 patients discharged compared to 118 in the same period in 1955, when extensive drug treatment was given.

Among patients hospitalized five years or longer, it was found that the percentage of improved cases increased even more when these patients were treated by drugs as compared to other types of treatment. Thirty-three were discharged among this group as compared to 19 the year before without benefit of drugs or a 77% increase In those hospitalized less than five years, 85 were discharged against 66, or a 69% increase

Of 533 patients receiving different types of psychiatric treatment, 202 were treated with tranquilizing drugs, and of this latter group 76% showed improvement. The percentage of improvement in those treated with the tranquilizing drugs was considerably higher than among those given other types of psychiatric treatment. Many of those successfully treated with drugs had failed to improve under other types of treatment. The other forms of psychiatric treatment studied were found effective to the following degrees insulin, 59%, electric shock, 54%, and lobotomy, 46% The group surveyed ranged in age from 18 to 69 years and had been hospitalized for periods of from one month to 30 years

Training in Anesthesiology—The Veterans Administration has developed a plan for career residency training in anesthesiology for full-time physicians in order to overcome the shortage of certified anesthesiologists in the VA s Department of Medicine and Surgery The program will begin July 1 1956, in several VA hospitals The VA said the new plan is not a substitute for the regular residency program, nor will it interfere with the program now in effect. The plan has an obligated service requirement of two years Prior service in the VA is not a requirement as long as the obligated service contract is signed The program has the following essential features 1 Formal residency training will be provided at VA hospitals approved for residency training by the American Medical Association and the American Board of Anesthesiology 2 Appointment will be restricted to physicians in intermediate and lower grades 3 Physicians to be eligible for such training must be approved by the manager and the dean s committee of the training hospital concerned

Psychiatrist Needed.—The Veterans Administration Medical Teaching Group Hospital, Memphis 15 Tenn, is in need of a psychiatrist. This 1,215-bed general medical and surgical hospital has a residency program with 55 residents in all medical specialties Every full-time physician has teaching assignments The salary begins at $8 990 to $11 610 per annum depending on the qualifications of the applicant, with 25% for board certification in addition to salary For further details contact Dr C C Woods, Manager, VA Medical Teaching Group Hospital

Personal—Dr George M Lyon, manager of the Veterans Administration hospital at Huntington, W Va has received an honorary doctor of science degree from Denison University at Granville Ohio His World War II career in atomic medicine and his postwar activities as chief of the radioisotope section in the VA were factors in his choice of degree

Hospital News—Dr Juan Negrin Jr, attending neurosurgeon Kings Park Hospital, Kings Park, N Y addressed the hospital staff of the Veterans Administration hospital at Northport L. I N Y June 22, 1956, on "Recent Advances in Neurological Surgery"

DEATHS

Blatherwick, Wilfred Edwin ⊕ Newtown, N D, Rush Medical College, Chicago, 1901, member of the North Dakota Fifty-Year Club, died April 7, aged 85, of acute myocardial infarction

Bogaev, Harry Abraham ⊕ Philadelphia, University of Pennsylvania School of Medicine, Philadelphia 1919, assistant professor of clinical urology at Jefferson Medical College for many years on the staff of the Jefferson Medical College Hospital, where he died April 20, aged 63, of coronary thrombosis

Bolosky Samuel Alford ⊕ Philadelphia, Tufts College Medical School, Boston 1924, served during World War II died in Haddonfield, N J, April 14, aged 54, of coronary occlusion

Brown, George Washington Los Angeles, Central Medical College of St Joseph, Mo, 1898, formerly on the faculty of College of Medical Evangelists, Loma Linda and Los Angeles, an associate member of the American Medical Association died March 29, aged 72, of pneumonia, arteriosclerosis and diabetes mellitus

Candlin, George Henry, Blanco Texas, Eclectic Medical Institute, Cincinnati, 1906, formerly practiced in Laredo, past-secretary and president of the Webb-Zapata-Jim Hogg Counties Medical Society, died Jan 24, aged 75, of cerebral hemorrhage and arteriosclerosis

Capps Murl T, Emporia Kan, Rush Medical College, Chicago, 1916 died in Clearwater, Fla, March 18 aged 64, of coronary thrombosis

Casto, James Frederick ⊕ New Braunfels, Texas, University of Louisville (Ky) School of Medicine, 1926, in 1929 joined the staff of the Atchison, Topeka and Santa Fe Railway Hospital, Topeka, Kan, where in 1938 he became surgeon in charge, a position he held until 1947 served as charter president of the Comal County Medical Society, veteran of World War I, died in the Baptist Memorial Hospital, San Antonio, April 19, aged 56, of nephritis and heart disease

Conway, James Vincent ⊕ Elizabeth, N J, George Washington University School of Medicine, Washington, D C, 1934, served during World War II, on the staffs of the Newark (N J) Eye and Ear Infirmary and the Elizabeth General Hospital and Dispensary, died April 16, aged 49, of carcinoma of the pancreas

Cooper, Edwin S ⊕ New Castle, Pa, Western Pennsylvania Medical College, Pittsburgh, 1896, died in St Petersburg, Fla, April 18, aged 84, of acute myocardial infarction

Copeland, Floyd Ray ⊕ Dallas, Texas, Baylor University College of Medicine, Dallas, 1924, veteran of World War I, on the medical staff of the Methodist Hospital, died April 12, aged 62

Crowder, John W ⊕ Belle Ellen, Ala, University of the South Medical Department, Sewanee, Tenn, 1904 died March 22 aged 77

Day, Joseph Edward ⊕ Salt Lake City College of Physicians and Surgeons, Baltimore, 1913, veteran of World War I, on the staffs of Dr W H Groves Latter-Day Saints Hospital, where he died April 10, aged 75, of cerebral hemorrhage

Dean, Leslie Errol ⊕ Maryville, Mo, Kentucky School of Medicine, Louisville, 1898, served on the staff of St Francis Hospital, where he died March 20, aged 80, of lymphoblastoma

Dean, Ray Herbert ⊕ Washington, Iowa, State University of Iowa College of Medicine, Iowa City, 1902, died in the Washington County Hospital, April 12, aged 79, of heart disease

Dechow, Philip Herman ⊕ Kinderhook, Ill, Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1906, died in Abingdon, April 2, aged 78

De Young, Thies ⊕ Sparta, Mich, Loyola University School of Medicine, Chicago, 1929, veteran of World War I, village health officer, on the staff of St Mary's Hospital in Grand Rapids, died April 10, aged 62, of coronary thrombosis

Di Loreto, Valentino B ⊕ Steubenville, Ohio, Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1905, died in the New England Baptist Hospital in Boston March 31, aged 76, of carcinoma of the ampulla of Vater

Dubose, Roger Harold, Roanoke, Va, North Carolina Medical College Charlotte, 1918, member of the Medical Society of Virginia veteran of World War I, died April 2, aged 64

Durrant, James Arthur ⊕ Snohomish, Wash, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900 formerly state representative, veteran of World War I, served on the staffs of the Providence and General hospitals in Everett, died April 4, aged 80, of paralysis agitans

Estle, Claude Beckett, New Albany, Ohio Starling-Ohio Medical College, Columbus, 1912 member of the Ohio State Medical Association died in the Grant Hospital, Columbus, April 4, aged 71

Fitz Simmons Lewis, Pulteney N Y Long Island College Hospital Brooklyn, 1890, for many years health officer, an associate member of the American Medical Association, died April 20, aged 99

Folckemer, Harry Roy ⊕ Quincy, Ill College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905, for many years resident physician at the Illinois Soldiers and Sailors Home, died in St Mary's Hospital May 3, aged 75 of arteriosclerotic heart disease

Foster, Arthur Neville, Boston, McGill University Faculty of Medicine Montreal, Canada, 1912 member of the Massachusetts Medical Society, died in the New England Deaconess Hospital May 6 aged 72, of progressive muscular atrophy and carcinoma of the prostate

Fowler, Samuel Robertson, Fayetteville, N Y, Columbia University College of Physicians and Surgeons, New York City, 1902, veteran of World War I, taught at Syracuse (N Y) University College of Medicine, served on the staff of the Memorial Hospital in Syracuse, died in the Veterans Administration Hospital in Syracuse April 23, aged 80, of acute pulmonary edema and arteriosclerotic heart disease

Fox, Richard H ⊕ Bicknell, Ind, Kentucky School of Medicine, Louisville, 1898, served as county health officer, died in the Good Samaritan Hospital, Vincennes, April 3, aged 87, of carcinoma of the bladder

Frasier, Lester Warren ⊕ Philadelphia, Medico-Chirurgical College of Philadelphia, 1914, veteran of World War I, died in the Hospital of the University of Pennsylvania April 29, aged 65, of pulmonary edema and embolism

Fry, Thomas Charles ⊕ Brooklyn, N Y, Columbia University College of Physicians and Surgeons, New York City, 1929, fellow of the Brooklyn Academy of Pediatrics, on the staffs of St Mary's Hospital, Kings County Hospital, and the Carson C Peck Memorial Hospital, where he died May 18, aged 54, of coronary disease

Howard, Lewis Hoagland, Tucson, Ariz, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1916, an associate member of the American Medical Association, served during World War I, city and county health officer, died in St Marys Hospital and Sanatorium April 6, aged 62, of cerebral hemorrhage and hypertension

Howell, James Ernest, Mount Vernon, N Y, Tulane University of Louisiana School of Medicine, New Orleans, 1921, died March 23, aged 63

Johnston, Lloyd B ⊕ Cincinnati, Johns Hopkins University School of Medicine, Baltimore, 1922, fellow of the American College of Surgeons, formerly on the faculty of the University of Cincinnati College of Medicine, served on the staffs of the Christ and Children's hospitals, member of the staff of the Good Samaritan Hospital, where he died April 5, aged 62

⊕ Indicates Member of the American Medical Association

Kampen, Harry Louis ⊕ Monmouth, Ill., Eclectic Medical Institute, Cincinnati, 1892, past-president of the Warren County Medical Society veteran of World War I died April 16 aged 90

Kemper, P Allen ⊕ Germantown Ohio Eclectic Medical Institute Cincinnati 1903, on the staff of the Middletown (Ohio) Hospital died April 12 aged 79

Klaman, Clarence Alvord, Jr ⊕ Lehighton Pa Temple University School of Medicine, Philadelphia, 1952 interned at the Allentown (Pa) Hospital, certified by the National Board of Medical Examiners, died April 11 aged 32 in an automobile accident

Klock, Glenn George, Easton Pa University of Pennsylvania School of Medicine, Philadelphia 1910 an associate member of the American Medical Association, on the staff of the Easton Hospital died April 23 aged 72 of a heart attack

Loomis, John Lawrence ⊕ Santa Ana Calif University of Pennsylvania School of Medicine Philadelphia, 1922 served during World War I died May 1 aged 59 of acute coronary occlusion and arteriosclerosis

Luke, Ray Henry ⊕ Erie Pa University of Buffalo School of Medicine 1917 fellow of the American College of Surgeons on the staff of St Vincent s Hospital died May 1 aged 61

Matthis, Paul Givens, Chicago Northwestern University Medical School Chicago, 1926 on the staff of the Provident Hospital, veteran of World War I died May 5 aged 60 of coronary heart disease

McAlister, Thomas Grady, Jr ⊕ Johnstown Pa Northwestern University Medical School Chicago 1950 interned at St Luke s Hospital in Chicago formerly a resident at the Conemaugh Valley Memorial Hospital, where he was on the reserve staff on the courtesy staffs of the Mercy and Lee hospitals was instantly killed near Petersburg W Va April 22 aged 41 in an automobile accident.

Montilli, Pasquale Frank, New York City Medical College of Virginia Richmond 1926, served during World War II died April 13 aged 55 of coronary occlusion

Newcomer, Nathan Bennett, Palo Alto Calif Denver and Gross College of Medicine Denver 1906 specialist certified by the American Board of Radiology, formerly practiced in Denver member of the Colorado State Medical Society an associate member of the American Medical Association died May 5 aged 77

Riddel, Simon W , Grantsville W Va , Baltimore University School of Medicine 1905 veteran of the Spanish American War, died May 9 aged 86

Sagel, Jacob S ⊕ Gary Ind University of Minnesota Medical School Minneapolis 1927 specialist certified by the American Board of Radiology member of the Radiological Society of North America and the American College of Radiology assistant instructor 1931-1932 and instructor in radiology 1932-1934 at his alma mater veteran of World War I roentgenologist at Methodist Hospital died in Miami Fla , April 5 aged 55 of myocardial infarction coronary occlusion and arteriosclerosis

Sibila, Anthony Foley, Cleveland Western Reserve University School of Medicine Cleveland 1954 interned at St John s Hospital died April 27 aged 28

Silver, E Drew ⊕ Hightstown N J College of Physicians and Surgeons Baltimore 1913 served as mayor of Hightstown member of the board of health, and school physician veteran of World War I died in the Princeton (N J) Hospital March 27 aged 66 of myocardial insufficiency

Simins, Eli ⊕ New York City New York Homeopathic Medical College and Flower Hospital in New York City, 1929 interned at the Jewish Memorial Hospital died in the Beth David Hospital April 23 aged 52, of sarcoma of the right hand with generalized metastases

Sloan, Guy Arthur ⊕ Bloomington, Ill University of Illinois College of Medicine Chicago 1913 an associate member of the staff of the Pekin (Ill) Public Hospital and Fairbury (Ill) Hospital on the staffs of the Mennonite and St. Joseph s hospitals died April 23 aged 67 of acute coronary occlusion

Smallman, Howard Lee ⊕ San Rafael Calif University of Michigan Medical School Ann Arbor 1916 member of the Industrial Medical Association served during World War I retired medical director of the Babcock & Wilcox Company in Barberton Ohio died in the Marin General Hospital April 1 aged 63 of acute congestive heart disease

Starns, Charles Emanuel ⊕ Tucson Ariz University of the South Medical Department, Sewanee Tenn 1909 member of the American Trudeau Society formerly associated with the Veterans Administration died March 28 aged 70 of myocardial infarction

Sumpter, William D ⊕ Nashville Tenn University of Virginia Department of Medicine Charlottesville, 1894 at one time on the faculty of the University of Tennessee College of Medicine Memphis, member of the Nashville Academy of Medicine on the staff of the Mid-State Baptist Hospital died March 31 aged 83

Swails, Jeremiah Arthur Acton, Ind Illinois Medical College Chicago 1899 died March 28, aged 85

Tyler, Russell Earle ⊕ Bowie Texas Fort Worth School of Medicine, Medical Department of Texas Christian University 1915 died in the Wichita Falls (Texas) State Hospital March 8 aged 62, of chronic myocarditis and pneumonia

Ungar, Stanley Fireman ⊕ New York City University and Bellevue Hospital Medical College New York City 1927 member of the Aero Medical Association and the Association of Military Surgeons of the United States veteran of World War II, winning the Air medal with three Oak Leaf Clusters and two Purple Hearts on the staff of the Knickerbocker Hospital, died April 18 aged 54 of pulmonary embolism

Van Beeck, Gregory Joseph ⊕ Medical Director U S Public Health Service retired, El Paso Texas University of Minnesota Medical School Minneapolis 1922 retired from the U S Public Health Service May 31 1952 died in the Veterans Administration Hospital, Big Spring March 13 aged 60 of pulmonary embolism and cerebral thrombosis

Webb, Fred Leland ⊕ Nashville Tenn Jefferson Medical College of Philadelphia 1902 fellow of the American College of Physicians, served during World War I formerly member of the city health department died in the Vanderbilt University Hospital March 26 aged 83 of myocardial infarction

Wilkinson, John Bennett, Alliance Ohio Cleveland Homeopathic Medical College 1903 member of the Ohio State Medical Association on the staff of the Alliance City Hospital where he died March 9 aged 75 of cerebral thrombosis duodenal ulcer and pyloric obstruction

Willcockson, Homer Bryant, Napa Calif St Louis University School of Medicine 1910 served in France during World War I for many years practiced in Illiopolis Ill died March 28 aged 75 of acute myocardial infarction

Williamson, Alexander Hamilton ⊕ Pass A-Grille Beach Fla Harvard Medical School Boston 1913 specialist certified by the American Board of Psychiatry and Neurology veteran of World War I associated with the regional office of the Veterans Administration neurologist at Veterans Administration Center in Bay Pines formerly on the staffs of the Neurological Institute and the New York City Hospital in New York City died April 10 aged 67 of coronary occlusion

Wood, Alfred Edwin New York City Fordham University School of Medicine New York City 1911 associated with the Veterans Administration died in the Jersey City (N J) Medical Center April 2 aged 72 of uremia

Wood, Dennistoun, Jr ⊕ Palo Alto Calif Stanford University School of Medicine San Francisco 1938 member of the American Academy of General Practice interned at the San Francisco (Calif) Hospital served during World War II on the staff of the Palo Alto Hospital died April 11 aged 50 of myocardial infarction and coronary thrombosis

Yard, James Christopher, New York City Meharry Medical College Nashville Tenn , 1925 died March 22 aged 71 of arteriosclerotic heart disease

FOREIGN LETTERS

AUSTRIA

Segmental Resection and Lobectomy.—At the meeting of the Society of Physicians in Vienna on May 18, Dr. M. Wenzl stated that segmental resection does not offer any functional advantage as compared with lobectomy. Segmental resection should not, therefore, be preferred to lobectomy for purely functional reasons and should be limited to patients with ideal tuberculous indications. Neither method shows any appreciable functional restrictions within six months after the operation, provided no postoperative complications occur. There is usually a return to the preoperative level. Pulmonary function may be expected to become greatly restricted after postoperative pleural complications and in the presence of thoracoplasty or adhesions that prevent an expansion of the lung parenchyma that remains after the resection. The expansion of the pulmonary parenchyma that is required for the filling up of the residual cavity after lobectomy does not present any risk with regard to the formation of emphysema. Overexpansion must be avoided only when an emphysema is present preoperatively, since an unfavorable course is possible, particularly in patients of advanced age. A permanent functional loss of 33% of the preoperative level usually occurs after pneumonectomy.

CHILE

Institute of Experimental Surgery.—In the first issue of the bulletin of the Institute of Experimental Surgery of the University of Chile, Dr. L. Perales and his co-workers reported an experimental study on the use on dogs of arterial homografts preserved by different methods (nutrient mediums, freezing, and lyophilization). The most practical method of preserving these grafts is freezing below −40 C. The success of transplantation depends on a good technique of anastomosis, asepsis, and uniformity of diameter between the vessel used and the aorta. A partial thrombosis of the graft does not alter its usefulness. Aortographic and autopsy studies did not reveal any changes in the size of the graft. During storage of the frozen or lyophilized grafts, the histological study made two or three months later revealed only minimal changes. The histological changes that were present in the grafts after transplantation were thickening of the intima, early degeneration of the muscular fibers, and late degeneration of the elastic fibers. The authors conclude that the same techniques of preservation and transplantation of grafts can be used in human beings.

In the same issue Dr. P. Castillo and his co-workers classified the different operations for the treatment of coronary insufficiency and concluded that the simplest method of revascularization is S. A. Thompson's. In the dog the introduction of inert substances into the pericardium produces intense pericardial vascularization and thickening. The experimental production of myocardial infarction in dogs, although different from its natural production in human beings, is of value in determining the protection revascularization confers on the heart. Thirty animals were divided into two groups, one of which underwent an experimental infarction and the other revascularization. In the second group infarction was later induced using the same technique. In those dogs that had undergone a previous pericardiopexy, the electrocardiographic changes were much less pronounced than in the control group.

In the same issue Drs. A. Escobar and A. Edwards reported that, using a modification of the Albanese technique, they produced mitral insufficiency in 60 dogs. After this was accomplished surgical correction was performed in 30 of these, using the atrial appendix in 10 and the pericardium in 20. Dogs with severe mitral regurgitation died of acute pulmonary edema. In those with moderate regurgitation the classical symptoms of heart failure gradually developed. Those on which correction was performed recovered quickly from the operation and did not have any limitation of physical activity or any symptoms that could be interpreted as heart failure. Electrocardiograms were made in the pre and postoperative period in 20 dogs, and only changes in the S-T segment and T waves were found. These were attributed to pericardial damage. In 10 dogs with mitral regurgitation, a phonocardiogram was made and a loud systolic murmur was demonstrated. In 10 of 17 dogs in which the mitral regurgitation was corrected, the murmur disappeared, in 6 its intensity decreased, and in only one was there no change.

Pyelonephritis.—In a symposium on pyelonephritis (*Revista medica de Chile*, October, 1955), Prof. Armas Cruz and his co-workers reported a series of 211 autopsies on patients from internal medicine wards only (urologic patients were excluded). Only 6% showed signs of chronic pyelonephritis, a figure much lower than reported by most foreign authors (about 15%). The authors consider only gross lesions of the kidney and not the small anatomic accidents or scars. This might explain the difference in frequency. The diagnosis of chronic pyelonephritis is based on a history of attacks of acute pyelonephritis, presence of bacteriuria (although bacteria may be found in the urine of 73% of normal persons), pus in the urine, radiological signs, and in some cases renal biopsy. These diagnostic criteria must be considered together rather than separately, and even then the diagnosis may be difficult. Only the pathologist can make a positive diagnosis. The authors selected a group of 200 hypertensive patients at random and found that in 19% edema was present and in 16% it was due to heart failure. Albuminuria was present in 55%, hematuria in 14.5%, bacteriuria in 73%, and pyuria in 10%. X-ray studies of the urinary tract showed pathological variations in only 23%. The cause of hypertension in these 200 patients was essential hypertension in 82%, chronic glomerulonephritis in 4.5%, chronic pyelonephritis in 7.5%, and miscellaneous causes in 6%.

Prof. O. Avendano and his co-workers analyzed the findings in 90 patients who on discharge from the hospital had diagnoses of chronic pyelonephritis. History of infection of the urinary tract was present in 44%, gynecologic disease was present in 31% (88% were women), and biliary tract disease was present in 27%. The most important diseases associated with the pyelonephritis were heart failure in 8%, coronary occlusion in 9.8%, acute left ventricular insufficiency in 3.2%, and diabetes in 11%. The physical examination in these 90 patients revealed hypertension in 83%, edema in 40%, and pain in the renal area in 13%. Laboratory tests showed bacteriuria in 98% and pyuria in 60%. The roentgenogram of the urinary tract was normal in only 10%. Uremia was present in 40% and in the rest the blood urea clearance was less than 50% of the normal value. Renal insufficiency was present in 14.8%. Treatment with antibiotics

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The items in these letters are contributed by regular correspondents in the various foreign countries.

caused disappearance of the urinary infection in 33% of the patients, of the hypertension in 47%, of the urinary syndrome in 36%, and of the uremia in 42% The normalization of the blood pressure in many was only transitory and the pressure returned to pretreatment levels when the administration of the antibiotic was stopped.

DENMARK

Varicelliform Pustulosis—Dr Flemming Reymann in *Ugeskrift for læger* for April 19 reported three cases of varicelliform pustulosis The first published description of this disease was given in 1880 by Moriz Kaposi, but it was not till 1941 that the agent responsible for it was identified as the herpes simplex virus One reason this condition is so often fatal is it is usually preceded by some other severe skin disease, in most patients Besnier s prurigo The records of the three patients show how varied the course of this disease may be, with an extensive vesicular rash in one, a strictly circumscribed rash in another, and an intermediate condition in the third The recovery of the first patient, who had a temperature of about 40 C (104 F) during the first 10 days was evidently due to use of cortisone and blood transfusion Various combinations of penicillin chlortetracycline and other antibiotics were given without producing a definite response, and the author intends to be more conservative in the future in giving antibiotics, however great the temptation

Poliomyelitis Vaccination—The poliomyelitis department of the State Serum Institute in Copenhagen is in the charge of Dr Herdis von Magnus whose repeated visits to the United States have assured close contact between the Danish and American laboratories Both the preparation and the mode of administration of the vaccine have differed somewhat in the two countries In Denmark the intradermal route has been preferred to the intramuscular route partly because the risk of provoking paralysis is much less with the former than with the latter route When the offer was made in 1955 of voluntary poliomyelitis vaccination of school children between the ages of 7 and 12 years 98% of the children accepted it Between April 25 and June 20 1955 not a single case of paralytic poliomyelitis was reported in Denmark but credit for this immunity could not be attributed solely to the use of the vaccine In 0 1 to 0 2% of the vaccinated children there were slight reactions at the site of the injection and in 42 children fever headache or other symptoms led to samples of blood and feces being sent to the State Serum Institute for examination The poliomyelitis virus could not be found in any of these samples In October a new campaign was started for the vaccination of children between the age of 9 months and school age Later the issue of the vaccine was abruptly stopped because the control tests had raised the suspicion that the desired inactivation of the vaccine had not been complete Prof H C A Lassen in *Ugeskrift for læger* for May 3 states that it is too early to decide between the conflicting claims for a dead or living poliomyelitis vaccine

Health of Greenland—Dr Mogens Fog-Poulsen in *Ugeskrift for læger* for May 3 draws attention to the wide fluctuations from year to year in death rates in Greenland largely due to epidemic diseases The census at the end of 1954 showed a total of 24 000 native Greenlanders, 50% of whom now live in towns In this year the birth rate was 45 1 and the death rate was 15 8 per 1,000 inhabitants, rates closely approximating those of Mexico Tuberculosis continues to be the most important cause of death in Greenland and it caused 25 9% of the total deaths, but of late years the tuberculosis death rate has fallen markedly Deaths from drowning and other accidents show a much higher rate in Greenland than in Denmark The infant mortality rate of 11.5% in Greenland is about four times as great as that of Denmark Although pulmonary tuberculosis easily headed the list of causes of death pneumonia was responsible for about 12% of all the deaths, cancer for only about 4% and old age an even lower percentage Accidents on the other hand, were responsible for over 12%

Prednisone for Asthma.—Dr Erik Andersson in *Ugeskrift for læger* for May 10 reports the treatment of 15 asthmatics with prednisone All 15 had been treated for several months with cortisone or hydrocortisone without benefit They were then given 7.5 to 20 mg of prednisone daily After more than three months experience with this drug under ambulatory conditions Andersson found that all but one had benefited and nine had achieved complete freedom from symptoms Since other observers had reported ulcers of the gastrointestinal tract as a result of use of this drug the author was on the lookout for this complication but in his patients no digestive complaints or other ill-effects were observed Weekly blood examinations showed moderate leukocytosis and eosinopenia and the fall in the number of eosinophils was more marked after use of prednisone than when cortisone was used No pathological elements were found in the urine nor was the blood pressure affected by this treatment, in which the beneficial effects were the more striking for the fact that none of the five asthmatics given a placebo showed any improvement Indeed all five became worse after one to two weeks of treatment with the placebo

FRANCE

Testing Color Perception—J Baron and his co-workers (*Presse med* 64 561 1956) used Farnsworth s 100-hue test for testing color perception in 137 subjects whose work in a factory required perfect color vision The test appears to have some value for assessing a subject s capacity of discriminating hues This constitutes an advantage over those other tests for color perception that provide information only about the inability to discriminate hues It is time-consuming however and its interpretation may depend to some extent on the lighting and the fatigue and mentality of the subject so that it may have to be repeated a number of times until a stabilized diagram is achieved

Extradural Hematomas—D Petit-Dutaillis and his co-workers in *Presse medicale* (64 521 1956) stated that extradural hematomas of the posterior cerebellar fossa may be hyperacute in which case the condition is usually inoperable and the prognosis is grave acute with a more favorable prognosis but often simulating subtentorial hematoma or subacute or chronic which forms are the most typical clinically and usually show such precise localizing signs as to justify exploration of the cerebellar fossa The diagnosis is facilitated by (1) simple radiography of the cranium at a frontosuboccipital angle which in over 80% of these patients reveals a fracture line involving the posterior fossa (2) ventricular puncture which may often show in subacute forms a hydrocephalus due to blocking of the cerebral aqueduct and (3) cerebral angiography when feasible which reveals a pathognomonic feature—the detachment of the torcular Herophili

INDIA

Control of Leprosy—Dr Dharmendra in the *Pharmaceutist* for March 1956 said that the sulfones had contributed to controlling the spread of leprosy At first these drugs were too expensive to be within the reach of many patients, but now they are cheap and their dosage has been standardized They are also safe and effective. All patients should be treated as early as possible. For this purpose it is necessary to have a case-finding program and to make treatment available near the patient's home. This requires a network of mobile clinics. Work along these lines has been started, and 40 centers have been established in 17 states. During the course of the second Five Year Plan, it is proposed to add another 100 centers.

Virus Encephalitis.—K. N. Gour reported a series of 106 cases of virus encephalitis occurring in Agra (*J. Indian M. A.* 10:384, 1956). The incidence was at its highest in August, September, November, and January, but sporadic cases occurred throughout the year. Contagion did not seem to play an important part in the disease. There was no secondary incidence or cross infection in the wards. The death rate was reduced by the use of antibiotics, especially tetracycline.

Indian Red Cross Society.—Since last year's catastrophic floods in 11 states, the Indian Red Cross Society has distributed over 250 tons of milk powder, 2,500,000 multivitamin tablets, 1,200,000 chloroguanide tablets, 450,000 quinacrine tablets, 100,000 sulfaguanidine tablets, 28,000 chloramphenicol capsules, 17,000 vials of penicillin, 3,000 vials of streptomycin, 100,000 yd. of cloth, 10,000 blankets, 18,000 shirts, and thousands of pajamas, saries, dhoties, and bed sheets, according to the *Indian Red Cross Journal* for March. In addition, general relief supplies have been sent to various welfare centers and clinics in different parts of the country. Help was also received from other countries during this period.

ITALY

Idiopathic Obesity.—At the meeting of the Societa Medico Chirurgica, Professor Lami, the president of the society, said that hyperalimentation still represents the fundamental problem in idiopathic obesity. Dietetic therapy is still of value, but it has no effect on obese people who eat little. This treatment consists of limiting the intake of fats or carbohydrates, increasing the relative intake of proteins, and limiting the ingestion of water. Medical therapy is indicated for those in whom obesity remains despite dietetic restriction. Thyroid extract combined with other hormones may be given to these patients. Amphetamine has a sympathomimetic ephedrine-like action. Its peripheral effect is adrenergic and goes beyond the simple decrease of the appetite. It probably accelerates the metabolism. The speaker treated patients with idiopathic obesity and obtained favorable results with a combination of amphetamine, thyroid extract, and dietary restrictions. Loss of weight was constant and at times quite noticeable. There were no untoward side-effects. Often the patients reported a sense of general well-being. These results indicate that the effect of the two drugs is synergistic. The presence of hypertension is no contraindication to the use of amphetamine. In treating infantile obesity caused by hypopituitarism with hypogonadism, good results are obtained with dietary restrictions, amphetamine, and thyroid extract. The results are much better, in fact, than those obtained with hormonal replacement therapies, which are expensive and not free from risk.

Postradiation Lesions of Uterus.—Prof. E. Lenzi reported a series of 332 women in whom benign diseases of the uterus were treated with endometrial applications of radium (*Rivista italiana di ginecologia*, no. 3, 1956). After a follow-up of 1 to 15 years, six of the patients were found to require further treatment: four for cancer of the cervix, one for a benign metrorrhagia, and one for a benign ovarian cyst. Postradiation cancers of the uterus occur in less than 1% of those at risk, or fewer than the number of patients with cystic hyperplasia or adenomatosis of the endometrium (the most frequent indications of endometrial radiotherapy) in whom cancer of the uterus would develop. The author advocates the use of large doses of radium, because such doses not only may prevent benign postradiation manifestations but may also prevent the development of cancer of the uterus.

NORWAY

Prednisone and Prednisolone.—Solem and Romcke, in *Tidsskrift for den norske lægeforening* for May 15, reviewed their experiences with 20 patients with such diseases as chronic polyarthritis, spondylarthritis ankylopoietica, bronchial asthma, Boeck's sarcoid, the adrenogenital syndrome, acute hepatitis, and idiopathic steatorrhea. Since many of the patients had previously been treated with cortisone with varying degrees of success, it was possible to compare effects of the two drugs and to note that the prednisone was four or five times as potent as cortisone. The 10 patients with chronic polyarthritis were already doing well on cortisone therapy when they were switched to prednisone, whose action many of them preferred to that of cortisone. Instead of 50 mg. of cortisone daily, several of them received only 10 mg. of prednisone, and no great difference was observed when, after eight weeks on prednisone therapy, they were switched to prednisolone. The three patients with asthma responded well to prednisone, as did the two with acute hepatitis, who had complete freedom from their dyspeptic symptoms within the first 24 hours of the drug's administration. There were various side-effects, but none were alarming. There was a remarkable gain of appetite in most patients, and this may have been the outcome of the disappearance of pain in the patients with polyarthritis and of the dyspnea in the cases of asthma and Boeck's sarcoid. The gain of weight in some patients was embarrassing, and six sought dietetic relief from this state, which evidently did not depend on sodium and water retention, for diuresis was increased rather than decreased. Moon face developed in 12 patients, and in 4 this was very marked. The dyspeptic symptoms noted in three patients were not severe enough to necessitate withholding the drug; two of these had a previous history of gastric ulcer. Neither the moon face nor the dyspepsia had followed the earlier administration of cortisone. Several patients experienced slight restlessness and disturbed sleep, but they were not worse than after administration of equivalent doses of cortisone. No change in the blood pressure was observed, whether it had been normal or above normal before prednisone was given.

Ornithosis.—Ornithosis was unknown in Norway until 1955, when a case was reported in a 48-year-old man. Complement-fixation tests for this disease have been carried out in Oslo as a routine measure since July, 1954. As a result of this precaution, Gardborg and Lerche were able to report in *Nordisk medicin* for April 26 three cases in the children's department of the city hospital. The patients' ages were 2½, 9, and 11 years. They all showed manifestations of a respiratory infection with intense cough and much expectoration. Signs of meningitis were present in one of these patients, but all three recovered. There was a high antibody titer in the complement-fixation tests during the illness and a marked decrease in titer early in convalescence, a characteristic finding in ornithosis. Close contact with birds (a parakeet in one case and pigeons in another) was noted in two patients.

Norwegian History of Medicine Society.—At a meeting in March of the editorial committee of *Tidsskrift for den norske lægeforening* it was decided to found the Norwegian History of Medicine Society. In the May 1 issue of the journal, Dr. Bjorneboe makes an appeal for a closer study of the history of medicine. He quotes Winston Churchill as saying, "The longer you can look back, the further you can look forward." The growing interest now taken in the history of medicine probably reflects a tendency among members of the medical profession to be more socially minded than they have been in the past.

Changing Causes of Death.—The leading Norwegian life insurance society Hygea has included in its annual report for 1955 a comparison of the causes of death among its subscribers in 1920 and 1955. In this 35-year period, tuberculosis and cancer have changed places as the cause of the greatest number of deaths. In 1920 tuberculosis accounted for 36% of all the deaths, whereas, in 1955 the corresponding figure was only 3%. In 1920 cancer accounted for only 3% of all the deaths, but in 1955 the corresponding figure was 23%. The diseases of the cardiovascular system have grown greatly in importance as the cause of death, and in 1955 they accounted for 22% of all the deaths. Fatal accidents have also grown in frequency, for whereas they accounted for 13% of all the deaths in 1920, the corresponding figure for 1955 was 18%. In the same period the diseases of the central nervous system have shifted from 7 to 11%.

UNITED KINGDOM

Excessive Demand for Ambulances.—The Minister of Health told hospital authorities that patients must not use ambulances if they can make the journey on foot or by public conveyance. The demand on ambulances has exceeded their carrying capacity. Ambulances must meet many urgent calls that cannot be planned for in advance. A special responsibility rests on physicians to satisfy themselves that patients cannot travel by other means. More than 60% of all calls on the ambulance service come from hospitals. Every hospital has been asked to appoint an officer to coordinate requests for ambulances. The use of the hospital car service, manned by volunteers, has resulted in many areas in an efficient, economical, and much appreciated service for patients who are able to sit up. Local authorities are asked to make full use of such volunteers whenever possible. The use of two-way radio communication, standardization of ambulance fleets, the replacement of two-to-four-stretcher ambulances by dual-purpose vehicles, and the use of diesel-powered ambulances should improve the efficiency of the local ambulance services.

College President Replies to British Medical Journal.—Sir Russell Brain, president of the Royal College of Physicians, in a letter published in the *British Medical Journal* of April 14, 1956, replied to the attack the journal made on him and the college. The journal described the college as being "antique" in method and "confused in purpose." According to Sir Russell, the article seriously misrepresented the college's work and exemplified a growing threat to freedom in medicine. Its policy has always been to cooperate with the government and to participate in decisions on all health service matters. Sir Russell said "If one wants examples of confusion of purpose one need look no further than the Association, whose leaders recently had to eat their words on the heroin ban and withdraw their evidence from the Royal Commission on Marriage and Divorce." The clear implication of the journal's article was that the British Medical Association should occupy a position of exclusive privilege and power in medicine. It is therefore vital that the royal colleges should remain free to express independent views.

Medicine in Russia.—The Minister of Health in Russia is a practicing surgeon when she is not occupied with the duties of her office, according to an article in the April issue of *Family Doctor* by Dr. John Burton on his visit to Russia. In Russia young physicians in general practice and taxi drivers are paid about the same, each being considered equally valuable to the community. Things that impressed Dr. Burton included the way Russians wanted to know what was wrong with them when ill and expected to have a full explanation; the polyclinics or health centers where a visit for a consultant's opinion simply meant a walk down the corridor; the large number of women physicians; the regular mass health examinations; the spotlessness of the overcrowded homes in Moscow and Leningrad; the mania for lace curtains and aspidistras; the sanatoriums and rest homes for those suffering from fatigue or nervous strain, and the cheerful, clean, healthy-looking children.

Vitamin B_{12} and Growth in Children.—The effect on growth and health of a daily supplement of 50 mcg. of cyanocobalamin (vitamin B_{12}) was studied in 22 children aged 1 to 2 years over a period of six months by D. A. Craigmile and her co-workers (*Month. Bull. Min. Health* 15:78, 1956). A comparable group of 25 children was given a placebo. At the end of the observation period there was no difference in the two groups of children. The children given vitamins had gained an average of 2 lb. 9 oz. in weight and 4.5 cm. in height and the control group 2 lb. 9 oz. and 4.7 cm. Nor was there any effect on the incidence or duration of disease; in both groups there were 13 absences from the day nurseries due to colds. The average number of days of absence for colds was 6.2 and 6.3 respectively. Similarly, 14 children in the study group got measles and were absent for an average of 20.8 days, while 17 children in the control group got the disease and were absent for an average of 22.1 days. The nursery attendants were unable to detect any difference in appetite or behavior in the two groups.

Center for Adult Spastics.—The National Spastics Society has just opened what is claimed to be the first residential and treatment center in the world for adult spastics. It has accommodations for 30 men and women aged 25 to 40 affected by cerebral palsy. The aim of the center, which is 40 miles from London, is to create a community of adult spastics in which treatment can be carried out in a companionable environment.

Perils of Health Propaganda.—The use of slogans on postal envelopes is now a well-recognized method of propaganda. That it is not without its hazards is illustrated by the recent experience of a health officer. According to the *Medical Officer* this officer as part of his clean food campaign obtained permission to affix labels bearing a slogan on all letters leaving the town hall during a particular week. The slogan was "It's safer if it's freshly cooked." All went well until it was realized that the letters bearing this laudable slogan included those with the cremations receipts.

Carcinoma of Thyroid.—J. E. Piercy (*Proc. Roy. Soc. Med.* 49:174, 1956) reported that of 1,700 thyroidectomies performed in the past five years 58 (3.4%) were for carcinoma of the thyroid. Of these, seven were found in toxic goiters. Of nontoxic nodular goiters operated on, 8% were malignant, the tendency to malignancy being particularly marked in the discrete adenomas. Considering all differentiated carcinomas, the presence and amount of papillary tissue appear to determine the prognosis; the more papillary tissue found, the slower growing and less malignant the tumor. Unlike cancer elsewhere in the body, carcinoma of the thyroid is more malignant in the aged than in the middle-aged and young. In this series there were 11 patients aged 60 or over. The diagnosis in all was clinically obvious, and seven died within a few weeks to a few months after operation. The majority had undifferentiated carcinomas or reticulosarcomas. In three, the carcinoma was found in a lymphadenoid or Hashimoto goiter. Two of these had undifferentiated goiters and died, but the third had the differentiated papillary type and was alive and well when last seen It is recommended that all lymphadenoid goiters be removed on this indication only, without considering other forms of treatment The prognosis in the middle and younger age groups is much better Most begin in a discrete adenoma The tumor may have been present for months or even years, but with a recent increase in size or change in consistency Five of the 47 patients in this group died, all were about 50 years of age Of the 42 patients alive and well, 7 had undifferentiated carcinomas

Treatment consists of total or near-total thyroidectomy The involved lobe should be entirely removed with the adherent strap muscles and any enlarged nodes The nodular goiter in children and young adults is to be viewed with grave suspicion, as it often proves to be malignant or at any rate recurs after operation and after reoperation, the final recurrences being malignant A recurrence within a few years of the operation in these young people should be treated by either a near-total thyroidectomy or by radioactive iodine ablation Piercy is tending more to perform total thyroidectomy when possible in all cases of clinically obvious carcinoma, unilateral or bilateral, with or without metastases, to give radioiodine therapy a better chance should metastases be present or arise later in other parts of the body Dr E E Pochin stated that three factors influence the selection of patients for radioiodine treatment 1 Radioiodine alone is never as reliable as total excision of a thyroid carcinoma 2 Anaplastic thyroid cancers rarely respond to radioiodine treatment, whereas differentiated ones usually do 3 Such tumors will rarely concentrate radioiodine and prove amenable to treatment by this means while normal thyroid tissue remains in the body The necessary preliminary for radioiodine treatment therefore is ablation of the thyroid, either by total thyroidectomy or by means of radioiodine Full myxedema usually develops two to three months after thyroid ablation, and the iodine uptake of the tumor commonly becomes maximal then or soon thereafter The percentage of the dose concentrated in tumor tissue cannot rationally determine the giving or postponement of treatment when neither the mass nor the radiosensitivity of the tumor is known The author, therefore, starts treatment if uptake is clearly detectable in tumor tissue by normal counting methods in a patient who has become myxedematous Measurements of the percentage of the radioiodine dose concentrated at tumor sites is of great value in later treatment He normally gives repeated 150-mc doses until this figure falls below 0 01% or uptake is no longer detectable, increasing the interval between doses as the percentage falls He uses an interval of six to eight weeks at first and while the total uptake exceeds 1%, giving doses every three or four months when the figures have fallen below 0 1%, and continuing annual tests when uptake is no longer detectable From the time that myxedema has developed and uptake is established, the patient receives thyroxine continuously, except for the four weeks before each dose of radioiodine

Diaper Rash—Writing in the *British Medical Journal* (1 782, 1955), Dr J P Bound states that thrush infection of the diaper area is a common condition in babies under 6 months of age The red, dry areas of infection desquamate, leaving characteristic isolated and denuded vesicles with a surrounding white collar of thin epithelium Yeasts were cultured from 42 to 47 infants with this condition, and in 39 cultures Candida albicans was identified Less than one-third of the babies showed any associated oral lesions of thrush, but there was a significantly increased incidence of thrush vaginitis in the mothers of affected babies, suggesting that hands were the method of transfer of infection These cutaneous lesions were painted with 1% aqueous solution of gentian violet at first Results were satisfactory, but 0 1% aqueous solution of thimerosal followed by a paste of titanium dioxide was found more practical and usually cleared the condition in two weeks

Bronchial Carcinoma—Dr N C Oswald in the *British Medical Journal* (1:761, 1955) reviewed a series of 272 cases of bronchial carcinoma and found that the prognosis is still poor in spite of advances in surgery and radiotherapy during the last 25 years Of 191 patients followed up for at least a year, 41% died within three months and 76% within a year of diagnosis One encouraging feature was the five-year survival of 50% of those having well-differentiated carcinomas who underwent surgical resection On the whole, however, surgical treatment has not been encouraging and pneumonectomy has been associated with a 10% case fatality rate The extent of operative procedures is limited by the general health of the patient Radical radiotherapy has also proved disappointing It relieved respiratory distress but required great judgment in its use Prophylaxis depends on further studies on atmospheric pollution with carcinogens Early diagnosis is difficult due to the late onset of symptoms and the difficulty of interpreting minimal radiographic changes in the lungs Three and a half months was the median duration of symptoms prior to diagnosis Better selection of patients for radical treatment, with a view to reducing the complications of treatment, is likely, but, although surgical and radiotherapeutic techniques continue to advance, it is possible that a new approach through hormonal or chemotherapeutic agents may be developed

Water Requirements—In 1948 an informal committee was set up to study water consumption The committee found that in the 10 years 1938 to 1948 a 20% increase had taken place in England and Wales Outside the London Metropolitan Water Board area this increase was 30% The evidence available suggested that consumption would be doubled by 1970 Industry has rapidly expanded since the war, and the water required by one oil refinery, for example, recently increased by 4 million gallons a day Agriculture now requires more water, and water supplies have been piped to rural areas to increase the hygienic standards and attract labor back to the country It is further estimated that the amount of water wasted per day is 3 to 10 gallons per capita Surface water sources are being greatly polluted by industrial waste and the underground waters are not being replenished as rapidly as formerly owing to draining of the land and extensive building programs The main difficulty is in storing water Reservoirs involve large expenditures of capital and cover large areas of agricultural land

Prostatic Smear Diagnosis—Fergusson and Gibson in the *British Medical Journal* (1 822, 1956) stated that the interpretation of the cytology of prostatic smears requires special experience and is likely to be practiced only in specialized centers In performing prostatic massage, an attempt should be made to obtain the secretion from the apex of the gland, as that from the base is often contaminated by vesicle exfoliation The smeared slides are fixed with Schaudinn's fluid and stained with hematoxylin and eosin In carcinoma of the prostate, abundant cells can be expected in the smear unless excessive scirrhous reaction has blocked the ducts The normal prostatic cells usually occur singly or in small groups with regular nuclei In contrast, the malignant cells occur in groups, their nuclei are irregular, larger, and hyperchromatic, and little cytoplasm is present Other cells seen may be transitional bladder cells, histiocytes, blood cells, or spermatozoa After estrogen therapy, glycogen-filled cells and squamous cells appear The results of 100 cases that were later available for histological examination of the prostate gland were analyzed and a definite cytological diagnosis was recorded Of 38 cases where smear diagnosis indicated carcinoma, this was confirmed in 36, of 7 others whose smears suggested malignancy, this was confirmed in 2, and, in the remaining 55, whose smears appeared normal, only 2 were found to have a malignancy Thus, this technique had an accuracy rate of 95 7%

CORRESPONDENCE

OXYGEN FOR NEWBORN INFANTS

To the Editor—The Committee on Fetus and Newborn of the American Academy of Pediatrics has prepared the following statement on the use of oxygen in premature and small infants

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STATEMENT CONCERNING THE USE OF OXYGEN IN THE TREATMENT OF PREMATURE INFANTS

Prepared by the Committee on the Fetus and Newborn Infant of the American Academy of Pediatrics

The accumulated evidence definitely incriminates the excessive use of oxygen as a major factor in the cause of retrolental fibroplasia in premature infants "Excessive use" implies concentrations of more than 40% or the prolongation of administration after the indication for its use has passed. It is possible that even short periods of administration of higher concentration may be harmful

On the other hand, the intelligent use of oxygen can be the means of saving the lives of hypoxic, dyspneic and cyanotic babies It would be unwise to arbitrarily deny adequate oxygen (and perhaps life) to those babies because of possible injury to the eyes of some

Accordingly the following recommendations are made

1 Oxygen should be prescribed only on medical order the same as any drug or treatment. (Except in emergency)
2 Oxygen should not be administered routinely but only upon specific medical indication
3 Oxygen concentration should be kept at the lowest possible level that will relieve the symptoms for which it is given if possible not over 40%
4 Oxygen therapy should be discontinued as soon as the indication for it has passed
5 Ordinarily the indications for supplemental oxygen are general cyanosis (not acrocyanosis) and dyspnea. The urgency of treating these symptoms must rest with the clinical judgment of the attending physician
6 Oxygen concentration must be determined by means of an oxygen analyzer as often as necessary to keep it properly stabilized but at least every four hours
7 A source which does not contain or deliver more than 40% oxygen will insure against exceeding that concentration but may not be adequate in those occasional instances where higher concentration is desired If such a restricted source of oxygen is employed additional oxygen should be available for those special instances where it is indicated
8 There are no apparent contraindications to the use of supplemental oxygen in infants weighing more than five pounds.

WYMAN C C COLE M.D

THE SOCIAL WORKER

To the Editor—The interesting article by Margolis and Mendelsohn "The Medical Social Caseworker in Private Medical Practice" (*J A M A* 161 309 [May 26] 1956) calls for some comments This article shows how a psychiatrically trained social worker can contribute to the management of a difficult psychosomatic problem The family doctor may not need such cooperation, he is informed not only about the physical ailments but also about the social and family background of his patients The group of specialists or the outpatient clinic of a large hospital may not know their patients as well, and cooperation of a qualified social worker may be useful and is certainly timesaving Serious thought should be given, however to the extent to which delegation of the duty of obtaining a detailed history is desirable The interpolation of a third person has the inherent danger of abolishing the close doctor-patient relationship This may be unavoidable in a large outpatient clinic but may not be desirable in any other form of medical practice The article by Schottstaedt and Gwinn, "The Social Worker as a Teacher in Medicine" (*J A M A* 161 318 [May 26] 1956) treads on more dangerous ground Nobody could fail to consent to the concept of multiple etiological factors, and the home visiting program appears admirable The difficulties arise with scrutiny of the motivations and the aims, as listed "The social worker is particularly well fitted [because] She has had ample opportunity to acquire sensitivity to dynamic intrafamilial relationships and to learn to deal simultaneously with people whose close ties do not prevent them from having diverse attitudes and conflicting aims Her training imbues her with a considerable awareness of social roles and of the impact of roles on other individuals She has a wide background of social and cultural information" To reduce this involved phraseology to plain English, it is postulated that the training of a social worker equips him with some esoteric capacity of dealing successfully with the common human problems particularly with tensions and conflicts in the family and social situation of the patients

The teaching in the discipline of social service consists basically of a selection from certain parts of social sciences particularly sociology and of medicine particularly psychiatry Equipped with this knowledge and certain interviewing techniques the social worker plays an important role in medical teamwork, particularly in collecting information that may help the physician to assess the circumstances and the social and familial background of his patients This knowledge may be essential for successful treatment or rehabilitation of certain groups of patients Much more research will be necessary and a much greater body of basic knowledge in this discipline will have to be accumulated before the social worker will be equipped for "establishing in the mind of the student a broader perspective in preventive medicine [that] becomes an integral part of patient care in terms of prevention of disease disability and economic handicap as well as in education toward a fuller and more satisfying way of life" The social worker is still striving for wider recognition of his work and deserves our sympathy and assistance His aims, however will not be furthered by reaching out for ill-defined and nebulous concepts, for which the present body of knowledge of this discipline does not equip him

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SEROTONIN

To the Editor—One particular in the otherwise excellent editorial entitled "Serotonin" in The Journal, June 2, 1956 page 460 could readily be misconstrued The second paragraph notes the interesting studies of Erspamer and his colleagues on the substance they called enteramine and considered to be a phenolic amine until, by adopting paper chromatography, they were able to identify this substance with serotonin (5-hydroxytryptamine) not "in 1952" but in 1951 (Erspamer and Boretti *Arch internat pharmacodyn* 88 296, 1951) Chronology suffers more severely in the next sentence for the editorial goes on to state that "Meanwhile Page and his associates had succeeded in isolating and identifying as 5-hydroxytryptamine a substance from blood serum long known to possess vasoconstrictive properties previously known by a variety of names, including serotonin and vasotonin" In my dictionary (Webster s New World) meanwhile has the meanings "in or during the intervening time" or "at the same time" so that the implication is that the work of Page and his group was either sequential to or contemporary with that of Erspamer and his associates Actually the report by Rapport, Green, and Page on the isolation and characterization of serum vasoconstrictor (serotonin) was in the *Journal of Biological Chemistry* (176 1237, 1948) This was also nearly the first use of the name since I coined it at that time Problems of scientific priority can be both vexed and vexatious Simultaneous discovery is by no means uncommon However in this case the record is clear and the time gap fairly wide and I wonder whether the editorial, as written does not imply an erroneous temporal sequence.

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MISCELLANY

THE ISOTOPE FARM

It is a pleasure to have been invited to participate in this occasion—the dedication of the radioisotope farm at the Medical College of Virginia. This marks a new step forward in medicine in Virginia and the results of your researches in the coming years will be eagerly anticipated by the medical profession and life scientists both in this country and abroad.

Medicine today stands at the threshold of a major advance—not only along the lines of practical applications in diagnosis and therapy, but also in its basic approaches to unanswered, fundamental research problems. In the language of the physicists "the field of medicine is just about ready for a 'quantum jump,'" and it is my feeling that this will come about through the increased use of isotopically labeled drugs and medicinals.

Isotope farming is the culture of biochemicals by raising plants and animals in an isotopically enriched environment such as an atmosphere of radioactive carbon dioxide. The difficulties of direct synthesis of most biochemicals are such that isotope farming is an attractive method for their production. In this manner, it is possible to raise any plant, and in principle any animal, so that there is equal probability that the carbon atoms in the molecule will be either stable or radioactive and therefore a condition of uniform labeling of the entire plant or animal will result. The first experiments were done with small, gas-tight laboratory assemblies so that the simplest molecules could be produced in labeled form. However the labeling generally was nonuniform for the reason that the plant had not been in a radioactive environment during its entire life history.

The first large isotope farm was that installed at the Argonne National Laboratory several years ago. It used the laboratory culture methods developed by Dr. Geiling and others and applied them on a larger scale. These were refined further and applied for several years by Dr. Norbert J. Scully, in whose skillful hands the potentialities of a full-scale farm were demonstrated. Dr. Scully's main efforts were devoted to plant culture, and the problem of closing the cycle by feeding animals with radioactive plants and utilizing the animal fertilizer and excretion products for fertilization of 'second generation' plants has not as yet been solved. It may well be that the difficulties of closing the cycle are so large that, as compared to the benefits, it may be unwise to insist on this last feature of perfection, but in the end one might hope that an isotope farm would be a closed system in which the plants and animals were in equilibrium and the marking isotopes were circulating freely.

Usefulness of Isotope Farms

In especially designed chambers such as those you have here in this farm we dedicate today, plants such as alfalfa, soy bean, buckwheat, rye, tobacco, foxglove, and poppy have been cultured in a radioactive carbon dioxide atmosphere so that all of their substance has been labeled with radiocarbon atoms in proportions of a few atoms of carbon-14 for every million ordinary carbon atoms. These plants have served to produce a number of useful radiochemicals.

In the first place, it has been possible to detect and isolate natural products from these plants which occur in concentrations which are beyond the limit of detection with the use of ordinary chemical assay methods. Among the more important of the labeled compounds isolated have been digitoxin, morphine, nicotine, sugars, amino acids, proteins, and vitamins.

By way of example, the digitoxin so produced has been used to study the problem of placental transfer. Radioactive digitoxin was given to four pregnant women and the concentration of the labeled drugs and its metabolic products determined in the various fetal organs. Less than 1% of the administered glycoside was detected in the fetus as unchanged digitoxin and less than 3.5% as its metabolites.

The applications listed are purely illustrative. It is clear that in the products from the isotope farm one has an essentially limitless reservoir of tools for the investigation of biochemical mechanisms. Certainly the future benefits of labeled medicinals from farms such as the one we dedicate here today will be many times those already obtained.

Future for Isotope Farming

It has been demonstrated already that the isotope farm products are of great value in biochemical and medical research. There is another possibility that I wish to mention—namely, that doctors may come to you for radioactive labeled medicines in normal medical practice for diagnostic purposes.

It would seem not unlikely that the feeding of a radioactive sugar pill to a patient suspected of having an abnormality in his sugar metabolism would furnish an easy and particularly illuminating way of testing that metabolism. Perhaps a patient would be asked to blow up a balloon so the carbon dioxide in his breath at various times after the taking of the pill could be sampled for radioactive carbon dioxide, and it might also be illuminating to examine the radioactive sugar content of the blood and urine at various times. In this way one might develop a method for testing for abnormalities in the sugar metabolic mechanism which would be far more sensitive or in other ways more desirable than present techniques. Research quantities of radioactive sugars labeled in specific positions have already been prepared at the National Bureau of Standards. It would seem not unlikely that in the future isotope farming may be done for routine diagnostic applications.

With the exception of oxygen and nitrogen, radioisotopes of most of the physiologically important elements can be introduced into living organisms by the farming technique. These include most importantly, in addition to radioactive carbon, radioactive hydrogen or tritium, the 12.25-year half-life isotope of hydrogen, radioactive sulfur, the three-month half-life isotope of sulfur, radioactive chlorine, the 2-million-year isotope of chlorine, the 3-year radioactive sodium-22, and possibly 14-day radioactive phosphorus, even though its half-life is relatively short. With these five or six isotopes, plants and animals can be labeled for half of their elements and so serve as sources for all of the biochemicals.

Consider the labeling with tritium of such a simple biological fluid as water, saline solution made in this way can be used for blood volume determinations—the technique consisting of withdrawal of the sample of blood and the addition of a known volume of the radioactive saline solution and the reinjection followed by subsequent sampling of the blood to determine the extent to which the radioactive tritium had been diluted. This measurement might well prove to be very useful in diagnosis of certain abnormalities. Certainly there seems to be no doubt that one of the great benefits of the atom will be not only the use of isotopes in medical research, but their use in routine diagnostic practice.

One must be careful to keep the amounts of radioisotopes ingested by the patients below any dangerous levels. Fortunately this is easily possible when modern radiation detection techniques are used. It also seems clear that the costs involved are not excessive and that all that remains to be done is the development of the tests and the marketing of the instruments. Of course it will be necessary to train medical students in the sensitive techniques necessary, and I hope that the Medical College of Virginia will pioneer in this instruction.

In conclusion I congratulate the Medical College of Virginia and its sponsors for their farsightedness in undertaking isotope farming. Their pioneering attitude and effort will serve the country well in helping to emphasize the promise and importance of this technique for applying the atom to medical research and practice. We cannot at this time visualize all the benefits which will come from this farm. The only certain thing is that by embarking on this road you will uncover new fields of benefit which, like those we have found already, will add to the vast store of knowledge that the atom has brought us. I believe firmly that, even though we had not any other benefits from the splitting of the atom, isotopes alone would themselves reward and repay us for all of the effort and funds we have invested in our atomic energy project.

Slightly abbreviated remarks by Dr. Willard F. Libby, Commissioner, U. S. Atomic Energy Commission, at the dedication of the Isotope Farm at the Medical College of Virginia, Richmond, May 10, 1956.

Postgraduate Courses for Physicians

Compiled by the Council on Medical Education and Hospitals for the Period Sept. 1, 1956 to Aug 31, 1957

The data in the following list of postgraduate courses have been compiled by the staff under the supervision of Dr Glen R Shepherd, Assistant Secretary of the Council on Medical Education and Hospitals The Council desires to express appreciation to the officers of the medical schools, hospitals, and medical societies who have cooperated in furnishing the information essential to the preparation of this report

Edward L Turner, M D., Secretary
Council on Medical Education and Hospitals

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INTRODUCTION

The second annual listing of postgraduate courses for physicians appears in the following pages of THE JOURNAL This listing is for the period Sept 1, 1956 to Aug 31, 1957 The annual listings replace the two semiannual lists that appeared before last year

Postgraduate medical education courses consist of planned activities for doctors of medicine intended to refresh practicing physicians in the various aspects of their basic medical education, to provide information on new developments in medicine, and to stimulate further educational efforts by the participants Such courses are not designed to provide the lengthy intensive education required for specialist training and thus they do not ordinarily lead either to credit toward graduate degrees or to specialty board certification These are in the field of graduate medical education and usually consist of residency training or fellowships Postgraduate courses are shorter than and may be less formal than graduate education programs

Though the educational values of medical society meetings and conventions as well as hospital staff and departmental meetings can be very real and worthwhile, such meetings are not usually here listed as postgraduate courses Lists of society meetings are to be found monthly elsewhere in THE JOURNAL

The list of postgraduate courses was prepared from the unevaluated replies to Council questionnaires by American medical schools, the 1,400 hospitals having approved internship and residency training programs, and the various national state and specialty medical societies This list is printed simply to provide for those physicians seeking postgraduate courses a point of departure through which further information can be obtained by writing to the institution or organization listed under Location Such inquiries should be made before traveling to any course listed, because dates, time arrangements, and fees are subject to change Courses for which there is insufficient registration may be canceled Such inquiry of the sponsor is especially urged about courses scheduled for 1957 on which final information may not have been available to the sponsor at the time this list was prepared

Many of the courses listed have co-sponsors to whom specific credit cannot be given because of space limitations It is expected that the institution or organization sponsoring the course has provided such co-sponsor recognition to its registrants, for such organizations as the American and state heart associations, the American and state cancer societies the National Foundation for Infantile Paralysis and its state chapters, the academies of general practice, other medical societies, and the various state boards of health are active and important in the field of postgraduate medical education

The term "refresher course" has been dropped in favor of designations concerned with time and place arrangements It was felt that the term refresher" was a useful one immediately after World War II when truly refresher courses were needed by physicians returning to active civilian practice from the armed forces At present, most courses contain so much current and new information that they cannot properly be designated as courses intended merely to refresh the physician in material he had previously studied

In the following list under each category, the order of arrangement of the courses is alphabetically first by states, second by cities within states, third by the institutions and organizations within the cities, and last by date of course where several are offered by the same institution or organization

For purposes of the list, two of the categorical terms have a special use in addition to their usual denotations In the General Practice category are listed those courses having subjects embracing several fields such as a course on management of mass casualties The category of Internal Medicine is used also for courses on specific diseases such as diabetes or rheumatoid diseases that would be of major interest to the practitioner of internal medicine

KEY

Designed

G—Primarily for physicians in general practice and part time specialty practice
S—Primarily for physicians in full time specialty practice
B—For both of above

Type

A—Time by arrangement
BC—Brief course, less than five days regardless of hours per day
BCI—Brief course intermittent
SC—Short course five or more days
SCI—Short course intermittent
CC—Circuit course (same course given at different locations)
MT—Medical traineeship*
HS(TV)—Home study by television
HS(R)—Home study by radio
HS(AV)—Home study by audiovisual kit
HS(C)—Home study by correspondence or assigned reading
O—Other

Time Arrangement

C—Continuous or concentrated (e g , as every day for five days)
I—Intermittent (e g , every Thursday for six weeks)

Methods of Instruction

AV—Audiovisual aids (movies, slides models)
Cad—Cadaver demonstration or dissection
Dem—Demonstration other than of patients
EPP—Enrollee performs procedure
O—Open questions
Lab—Laboratory work
Lec—Lecture
LC—Live clinic
Pan—Panel
Pt Dem—Patient demonstration
Sem—Seminar
Sur—Operative surgery
TV—Television
WR—Ward rounds

* Medical traineeship is a residency type experience in hospital, clinic or school with participation in residents conferences and ward rounds but usually without patient responsibility This specially arranged experience usually lasts from two weeks to less than a year Neither housing nor formal credit is provided Traineeships usually do not involve night or emergency room duty

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ALLERGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Course in Allergy	American Academy of Allergy 208 E Wisconsin Ave Milwaukee 2 course at Hotel Statler Los Angeles	G	BC	Sem Lec Pan O AV	18	2/ 1/57	2/ 3/57	C, 3 days	Nil
Allergy and Related Conditions	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem LC, Lec O EPP	60	9/19/56 3/20/57	11/21/56	I 10 sessions 5 hr weekly, Wednesdays	125
Asthma Hay Fever and Allied Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Lec O AV EPP	140	Arranged		C 24 days	200
Asthma Hay Fever and Allied Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Lec O AV, EPP	600	Arranged		C 6 mo	500
Personal Course in Allergy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Lec O AV, EPP	110	Arranged		C 24 days	200
Personal Course in Allergy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Lec O AV EPP	600	Arranged		C 6 mo	500
Allergy	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec, Pan, AV	14	5/ 9/57	5/11/57	C 3 days	20
Instructional Course in Allergy	The American College of Allergists Inc 401 Marquette Bank Bldg , Minneapolis 2 course at Palmer House Chicago	B	BC	Lec	21	3/17/57	3/19/57	C 3 days	Unknown
Allergy	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec	20	10/56 4/57	12/56	I 10 sessions 2 hr weekly, Thursdays	30
Medicine PM 68	Montefiore Hospital 210th St & Bainbridge Ave New York	G	SCI	LC Lec	24	9/13/56	12/13/56	I 12 sessions 2 hr weekly, Thursdays	50
Allergy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem, LC, WR, Lec	16	Arranged		I 8 sessions 2 hr twice weekly, Mondays, Fridays	50
546-A Allergy	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab LC	105	11/26/56	12/14/56	C 15 days	250
547 A Refresher Course in Allergic Conditions	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Pt Dem Lec	21	3/25/57	3/27/57	C 3 days	55
545-A Allergy	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	14	4/12/57	5/31/57	I 7 sessions 2 hr weekly, Fridays	45
Modern Concepts and Management of Allergic Diseases	Roosevelt Hospital Institute of Allergy 428 W 59th St New York 19	G	SC	Lab, Pt Dem LC WR Sem Lec, Pan O AV, EPP	80	5/13/57	5/24/57	C 10 days	175
Basic and Clinical Allergy	Montefiore and Associated Hospitals 3459 5th Ave Pittsburgh	G	SC	Lab Pt Dem LC WR Sem Lec Pan O AV	60	4/ 1/57	4/ 5/57	C 5 days	50
Allergy—Part III	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	S	BC	Lec O	12	9/56	9/56	C 2 days	30

ANATOMY

Surgical Anatomy	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Lec Pan Cad	201	10/1/56	6/ [illegible]	1 [illegible] sessions 4 hr twice weekly Mondays Wednesdays	[illegible]
Surgical Anatomy—Upper and Lower Extremities	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Lec Pan Cad	101	10/1/56	1/9/57	1 20 sessions 4 hr twice weekly Mondays Wednesdays	12[illegible]
Surgical Anatomy	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan Cad	74	10/3/56	6/ [illegible]	1 [illegible] sessions 2 hr twice weekly Mondays Wednesdays	100
Surgical Anatomy Upper and Lower Extremities	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan Cad	26	10/3/56	1/9/57	1 13 sessions 2 hr weekly Wednesdays	[illegible]
Surgical Anatomy—Thorax Abdomen and Pelvis	College of Medical Evangelist 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Pan Lec Cad	104	1/14/57	4/17/57	1 [illegible] sessions 4 hr twice weekly Mondays Wednesdays	12[illegible]
Surgical Anatomy Thorax Abdomen and Pelvis	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan Cad	20	1/16/[illegible]	4/17/57	1 14 sessions 2 hr weekly Wednesdays	[illegible]
Surgical Anatomy Head and Neck	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Lec Pan Cad	[illegible]	4/[illegible]/57	6/ [illegible]	1 14 sessions 4 hr twice weekly Mondays Wednesdays	7[illegible]
Surgical Anatomy Head and Neck	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Cad Lec Pan	22	[illegible]/57	6/ 5/57	1 11 sessions 2 hr twice weekly Mondays Wednesdays	3[illegible]
Surgical Anatomy	University of California School of Medicine Los Angeles 24	G	SCI	AV	[illegible]	9/19/56	11/[illegible]/56	1 10 sessions 2 hr weekly Tuesdays	[illegible]
Surgical Anatomy Dissection	University of California School of Medicine Los Angeles 24	G	SCI	Lab Lec EPP	15	1/[illegible]/57	[illegible]/57	1 8 sessions 2½ hr weekly Tuesdays	[illegible]
Gross and Applied Anatomy	Mercy Hospital Hillcrest Drive San Diego Calif	G	SCI	Lab Sem Lec AV EPP	39	9/ 7/56	12/31/56	1 16 sessions 2 hr weekly Wednesdays	Nil
Gross and Applied Anatomy	San Diego County General Hospital North End of Front St San Diego Calif	S	SCI	Lab Lec AV	72	10/56	1/57	1 16 sessions 2 hr weekly Wednesdays	Nil
Neuroanatomy	Program Director 10th Conn Post Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine New Haven Conn	S	SCI	Lab Lec O AV	[illegible]	9/[illegible]/56	11/14/56	1 8 sessions 2½ hr weekly Wednesdays	Nil
Anatomy 302 Demonstrations in Anatomy for Surgeons	Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lab AV	[illegible]	9/56	[illegible]/57	1 one evening weekly for about 30 wks	175
Anatomy 303 Special Dissections in Anatomy for Surgeon	Yale University School of Medicine 333 Cedar St New Haven Conn	S	A	Lab		Arranged		1 Specially Arranged	to be Arranged
Surgical Anatomy on the Cadaver	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab WR Sur Lec O Cad	[illegible]	9/[illegible]/56 3/21/57	11/[illegible]/56	1 10 sessions 2 hr weekly Thursdays	[illegible]
Anatomy of the Head and Neck as Applied to Eye Ear Nose and Throat	University of Maryland School of Medicine Lombard and Greene Sts Baltimore	B	SC	Lab Sem	110	10/56	1/57	[illegible] days	[illegible]
Surgical Anatomy	University of Maryland School of Medicine Lombard and Greene Sts Baltimore	S	SCI	Lab Lec	[illegible]	1/[illegible]/57	[illegible]	1 30 sessions 3 hr twice weekly Wednesdays	[illegible]
General Anatomy	University of Maryland School of Medicine Lombard and Greene Sts Baltimore	B	A	Lab Sem	Arranged	Arranged	Arranged	Arranged	Arranged

Key will be found on page 1278

ANATOMY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Dissection of Head and Neck Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Lab Lec EPP	35	9/25/56	11/27/56	I 10 sessions 3½ hr weekly, Tuesdays	200
Dissection of Thorax and Abdomen Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave, Albany N Y	G	SCI	Lab Lec EPP	42	12/ 4/56	3/ 5/57	I 12 sessions 3½ hr weekly Tuesdays	200
Dissection of Upper and Lower Extremities Correlated with Clinical Surgery	Albany Medical College 47 New Scotland Ave Albany N Y	G	SC	Lab Lec EPP	42	3/12/57	5/28/57	C 12 days	200
Seminar in Functional Anatomy	State University of New York College of Medicine 450 Clarkson Ave Brooklyn 3 N Y	G	SCI	Cad Lec O EPP	50	1/10/57	5/31/57	I 20 sessions 2½ hr weekly Fridays	Unknown
Anatomy—Surgical (a)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Sur Sem Lec O AV, EPP	18	Arranged		I 6 sessions 3 hr 3 times wk Mondays, Wednesdays Fridays	300
Anatomy—Surgical (b)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Sur Sem Lec O AV EPP	12	Arranged		I 6 sessions 2 hr 3 times wk, Mondays Wednesdays, Fridays	200
Anatomy—Surgical (c)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Sur Sem Lec O AV EPP	12	Arranged		I 6 sessions 3 hr 3 times wk Mondays, Wednesdays Fridays	300
Anatomy—Surgical (d)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	BCI	Lab Sur Sem Lec O AV EPP	6	Arranged		I 3 sessions 2 hr 3 times wk, Mondays Wednesdays Fridays	300
596-A Anatomy of the Head Neck and Thorax for Otolaryngologists	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Cad	90	9/17/56	10/26/56	C 30 days	125
411 A Surgical Anatomy of Head and Neck	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab EPP	144	9/24/56	12/14/56	I 36 sessions 4 hr 3 times weekly Mondays Wednesdays Fridays	100
412 A Surgical Anatomy of the Thorax and its Viscera	New York University Post Graduate Medical School 550 First Ave, New York	S	SCI	Lab EPP	144	9/24/56	12/14/56	I 36 sessions 4 hr 3 times weekly Mondays, Wednesdays Fridays	100
413-A Surgical Anatomy of the Abdomen	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab EPP	144	9/24/56	12/14/56	I 36 sessions 4 hr 3 times weekly Mondays Wednesdays Fridays	100
583-A Anatomy for Orthopedic Surgeons	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Cad	35	1/ 7/57	1/11/57	C 5 days	125
414 A Surgical Anatomy of the Female Pelvis	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab, EPP	144	3/25/57	6/14/57	I 36 sessions 4 hr 3 times weekly Mondays Wednesdays Fridays	100
415-A Surgical Anatomy of the Genitourinary System	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab EPP	144	3/25/57	6/14/57	I 36 sessions 4 hr 3 times weekly Mondays Wednesdays Fridays	100

110-A Surgical Anatomy of the Musculoskeletal System	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab FPP	144	3/25/57	6/14/57	I 36 sessions 1 hr 3 times weekly Mondays Wednesdays Fridays	100
Anatomy	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	B	A	Lab Cad	Arranged	Arranged		This course will be scheduled upon request and can be held anytime	Arranged
Anatomy 11 G	School of Medicine Western Reserve University 2109 Adelbert Rd Cleveland 6	S	SC	Cad Lec O AV		10/1/56	4/30/57	Enrollment may be made at beginning of any month	75 mo
Surgical and Applied Anatomy	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	SCI	Sur Lec AV	75	10/56	5/57	I 31 sessions 2 hr weekly Tuesdays	50

ANESTHESIOLOGY

Postgraduate Course in Anesthesiology	Good Samaritan Hospital McDowell Rd at 10th St Phoenix Ariz	G	SC	Lab Pt Dem TC WR Sur O	120	Every 6 wk		C 30 days	Nil
Anesthesiology	College of Medical Evangelists Los Angeles 33 course at White Memorial Hospital Los Angeles 33	G	SC	TC Lec Pan	510	Every 4 mo		C 4 mo	300
General Anesthesia	St Francis Hospital 114 Woodland St Hartford 5 Conn	G	MT	Pt Dem TC Sur Lec O AV	Varies	9/17/56 1/1/57 3/1/57	Varies	Varies	Unknown
Regional Anesthesia	St Francis Hospital 114 Woodland St Hartford 5 Conn	G	MT	Pt Dem TC Sur Lec O AV	Varies	9/17/56 1/1/57 3/1/57	Varies	Varies	Unknown
Annual Refresher Course Program	The American Society of Anesthesiologists Inc 188 W Randolph St Chicago 1 course at Municipal Auditorium Kansas City Mo	B	BC	Lec O AV	12	10/8/56	10/9/56	C 2 days	1.50 per session
Course I Spinal Regional & Intravenous Anesthesia	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem TC Sur Lec O FPP	70	Arranged		C 12 days	150
Course III Inhalation Anesthesia	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem TC Sur Lec O FPP	110	Arranged		C 30 days	200
Course IV Endotracheal Anesthesia	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem TC Sur O FPP	70	Arranged		C 12 days	160
Anesthesiology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Kan	B	BC	Lec Pan O AV	21	1/15/57	1/17/57	C 3 days	35
Anesthesiology for the General Practitioner	Maine General Hospital [illegible] Arsenal St Portland Me	G	SCI	Sem Lec O AV	17	9/21/56	5/17/57	I 17 sessions 1 hr every other Friday	Nil
Anesthesiology for General Physicians	Continuation Medical Education [illegible] Mayo Memorial University of Minnesota Minneapolis	G	BC	Pt Dem Lec O	15	12/6/56	12/8/56	C 3 days	30
Advanced Technique and Theory of Anesthesiology	American Society of Anesthesiologists 188 W Randolph St Chicago 1 course at Jewish Hospital of Brooklyn	G	SC	Pt Dem TC WR Sur Sem Lec Pan O FPP	60	First wk of every mo including summer		C 12 days	25
Anesthesia	University of Buffalo School of Medicine [illegible] Main St Buffalo N Y	G	SC	Pt Dem TC WR Sur Sem Lec Pan O AV FPP	30	4/22/57	4/27/57	C 6 days	75
Applied Anesthesiology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem WR Lec AV	180	10/1/56 4/1/57	12/31/56	C 72 days	300
Regional and Spinal Anesthesiology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem WR Lec AV	80	Arranged		C 12 days	150
Anesthetic Technics	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem WR Lec AV	40	Arranged		C 6 days	100
Post Graduate Courses in Anesthesia for Part Time Anesthetists	New York State Society of Anesthesiologists [illegible] W 11th St New York course at various hospitals throughout New York State	G	A	Pt Dem TC WR Lec O AV FPP	Varies	Arranged	Arranged	I Arranged	Nil

Key will be found on page 1278

ANESTHESIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
512-A Regional Anesthesiology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab IC, Lec	70	9/4/56 4/15/57	9/15/56	C, 12 days	225
511-A Anesthesiology (For Specialists)	New York University Post Graduate Medical School 550 First Avenue New York	S	SC	IC	70	9/56	6/57	C 10 days may enroll any Monday	150
510-A Anesthesiology Endotracheal and Related Methods	New York University Post Graduate Medical School 550 First Ave New York	S	SC	IC Lec	35	10/1/56 1/7/57 3/25/57	10/5/56	C 5 days	100
516-A Safety Practices in the Operating Room	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Dem Lec	14	12/14/56 3/1/57	12/15/56	C 2 days	20
514-A Anesthesiology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem IC, Lec EPP	140	5/6/57	5/31/57	C 20 days	300
The General Practitioner in Anesthesia	Rochester General Hospital 501 W Main St Rochester N Y	G	BC	Lab Pt Dem Sur Lec Pan	25	5/15/57	5/17/57	C 3 days	15
Recent Advances in the Physiological Aspects of Anesthesia	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SC	Lec Pan O AV	21	3/18/57	3/20/57	C, 3 days	70
Anesthesiology	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston Tex course at Scott and White Clinic Hospitals Temple Tex	G	MT	Pt Dem WR Lec	Unknown	9/56	5/57	1st Monday of each mo	25
Postgraduate Refresher Course in Anesthesiology	University of Texas Postgraduate School of Medicine Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	G	SC	Pt Dem WR Sur Sem Lec EPP	176	9/56	5/57	C 24 days a mo	25
Anesthesiology	The University of Texas Postgraduate School of Medicine The Texas Medical Center Houston 25 Tex	G	BC	Pt Dem Lec	18	Unknown		C 3 days	45

BASIC SCIENCES

(See also Internal Medicine and Physiology)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
General Applied Medical Science	University of Colorado School of Medicine Office of Postgraduate Medical Education 4200 E 9th Ave Denver	G	SCI	Sem	Unknown	9/56	4/57	I once weekly for 8 mos, Thursdays	10
Biochemical Background of Clinical Medicine A Basic Course	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lec O	20	9/19/56 3/20/57	11/21/56	I 10 sessions 2 hr weekly Wednesdays	100
Basic Sciences as Applied to Practice of Medicine	University of Maryland School of Medicine Lombard and Greene Sts Baltimore	B	SCI	Lec	66	10/56	5/57	I 33 sessions 2 hr weekly Wednesdays	50
Basic Sciences and Their Clinical Application	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	S	MT	Lab Pt Dem LC WR Lec Pan O AV	Unknown	10/1/56	7/1/57	9 mo full time	500
430-A Medical Microbiology	New York University Post Graduate Medical School 550 First Ave New York	C	SCI	Lec	10	3/5/57	4/2/57	I 5 sessions 2 hr weekly Tuesdays	35
Practical Course in Radiological and Isotope Physics	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	MT	Lab IC Lec AV, EPP	520	7/56 1/57	3/57	65 days	225

CARDIOVASCULAR DISEASE

(See also Electrocardiography Pediatrics)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
26th Annual Symposium on Heart Disease	Los Angeles County Heart Association 316 S Bonnie Brae St Los Angeles 57	S	BC	Sem Lec Pan AV	12½	10/10/56	10/11/56	C 2 days	15
Pathologic Physiology of the Cardiovascular System	University of California School of Medicine Los Angeles 24	G	SCI	Lec Pan AV	24	10/1/56	12/18/56	I 12 sessions 2 hr weekly Mondays	50
Symposium on Heart Disease	Monterey County Heart Association P O Box 1329 Monterey California	G	BC	Pt Dem Sem Lec	12	12/1/56	12/2/56	C 2 days	
Twenty Seventh Annual Symposium on Heart Disease	San Francisco Heart Association 604 Mission St San Francisco 5 course at St Francis Hotel San Francisco	B	BC	Pt Dem Lec Pan O AV					

Symposium on Heart Disease	Santa Barbara County Heart Association 18 La Arcada Court Santa Barbara California	G	BC	Sem Lec Pan O AV	8	9/21/56	9/ 1/56	C 1 day	[illegible]
Symposium on Cardiovascular Disease	University of California Medical Extension San Francisco course at Odd Fellows Hall Santa Rosa California	G	BC	Lec	9	11/15/56	11/15/56	C 1 day	12 50
Recent Advances in Cardiovascular Disease	Colorado Heart Association 901 E 17th Ave Denver course at University of Colorado Medical School Denver	G	BC	Lec Pan AV	10	11/ 8/56	11/10/56	C 3 days	15 outside Colorado 5 for Colorado
Fifth Western Cardiology Conference	University of Colorado School of Medicine Office of Post Graduate Medical Education 1200 E 9th Ave Denver course at Colorado Heart Association Denver	B	BC	Lec Pan	21	11/ 8/56	11/10/56	C 3 days	15
Seminar on Cardiovascular Diseases	Division of Post Graduate Education College of Medicine University of Florida Gainesville Fla course at Duval County Medical Center Jacksonville Fla	B	BC	Pt Dem Sem Lec Pan AV	15	2/57	2/57	C 2½ days	10
Scientific Sessions—8th Annual Meeting of the Georgia Heart Assn	Georgia Heart Association 1 Twelfth St N E Atlanta 9 Georgia course at General Oglethorpe Hotel Savannah Ga	G	BO	Lec Pan O AV	10	9/11/56	9/13/56	C 2 days	Nil
Third Annual Program on Diseases of the Heart	Chicago Heart Association 69 W Washington St Chicago course at Sheraton Hotel Chicago	G	BC	Sem Lec Pan O AV	8	3/20/57	3/20/57	C 1 day	Nil
Cardiovascular Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Pt Dem IC WR Lec O	20	9/10/56	11/21/56	I 10 sessions 2 hr weekly Wednesdays	100
The Diagnosis and Treatment of Congenital and Rheumatic Heart Disease in Infants and Children	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem IC Sur Lec O AV	25	11/ 5/56	11/ 9/56	C 5 days	100
Roentgenology & Electrocardiography in Heart Disease in Infants and Children	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	BC	Lab Pt Dem IC Lec O AV	15	11/12/56	11/14/56	C 3 days	60
Angiocardiography & Catheterization of Heart & Great Vessels in Diagnosis of Congenital & Acquired Malformations in the Hearts of Infants and Children	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	BC	Lab Pt Dem IC Sur Lec O AV	15	11/15/56	11/17/56	C 3 days	60
Postgraduate Course on Arrhythmias	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BO	Lec Pan AV	16	5/20/57	5/21/57	C 2 days	20
Eleventh Annual Heart Conference	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	BC	Lec Pan O AV	11	2/ 5/57	2/20/57	C 2 days	Nil
Auscultation of the Heart	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	BC	Pt Dem Sem Lec Pan O AV	12	1/ 8/57	1/ 9/57	C 2 days	10
In Residence Training in Cardiovascular Disease	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	MP	Lab Pt Dem IC WR Sem Lec O AV	Unknown	2/ 1/57 3/ 1/57	3/ 1/57	1 mo	300
Cardiovascular Disease	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	S	SC	Lab Pt Dem IC WR Lec O	Unknown	10/ 1/56	5/31/57	C 8 mo	800
Cardiology 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital	G	SCI	Pt Dem Lec	30	11/ 7/56	1/23/57	I 12 sessions 3 hr weekly Wednesdays	75
Cardiology 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Beth Israel Hospital Boston	G	SC	Lab Pt Dem IC WR Lec	Unknown	1/28/57	5/ 1/57	C 3 mo	500
Clinical Heart Disease	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Peter Bent Brigham Hospital Boston	G	SC	Lab Pt Dem IC WR Lec	120-130	7/ 1/57	7/31/57	C 27 days	200
Vascular Diseases	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BO	Pt Dem Lec Pan AV	10	11/16/56	11/17/56	C 2 days	15
Cardiology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec AV	11	1/11/57	1/13/57	C 3 days	30
Diseases of the Heart	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SO	Pt Dem Lec O	30	3/18/57	3/22/57	C 5 days	50

Key will be found on page 1278

CARDIOVASCULAR DISEASE Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Cardiovascular Diseases for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	2/ 7/57	2/ 9/57	C 3 days	30
Cardiovascular Seminar	University of Mississippi Medical School Jackson Miss	G	BC	Sur Sem Lec AV	20	6/57		C 3 days	5
Cardiovascular Seminar	University of Mississippi School of Medicine Medical Center Jackson Miss	G	BC	Pt Dem Sem Lec AV	24	Unknown		C 3 days	Unknown
Nebraska Heart Association Annual Scientific Session	Nebraska Heart Association 4200 Harney St Omaha	G	BC	Sem Pan O	9	10/ 5/56	10/ 6/56	C 2 days	Nil
Cardiovascular Teaching Day	Albany Medical College 47 New Scotland Ave, Albany N Y	G	BC	Sem Lec Pan	6	2/ 7/57	2/ 7/57	C 1 day	10
Recent Advances in Therapy of Cardiovascular Diseases	Albany Medical College 47 New Scotland Ave Albany N Y	G	BC	WR Sem Lec Pan	15	2/ 7/57	2/ 9/57	C 2½ days	25
Cardiology	Coney Island Hospital Ocean Parkway and Avenue Z Brooklyn, N Y	S	SCI	Lab Sem, Lec Pan O AV	8	9/ 6/56	9/27/56	I 4 sessions 2 hr weekly Thursdays	Unknown
Cardiology	Coney Island Hospital Ocean Parkway and Avenue Z Brooklyn N Y	S	SCI	Lab Sem Lec Pan O AV	10	10/ 2/56	12/ 4/56	I 10 sessions 1 hr weekly, Tuesdays	Unknown
Clinical Cardiology	Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SCI	LC WR Lec	18	4/57	5/57	I 12 sessions 1½ hr twice weekly Wednesdays Fridays	30
Surgical Treatment of Heart Disease (PM64)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Pt Dem LC WR, Sur Sem Lec	64½	9/25/56 2/ 5/57	1/29/57	I 19 sessions 3½ hr weekly Tuesdays	150
Cardiology III (PM63)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Lab Pt Dem LC WR AV	64½	9/25/56 2/ 5/57	1/29/57	I 19 sessions 3½ hr weekly Tuesdays	150
Cardiology I (PM60)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Pt Dem WR Lec Pan AV	84	9/27/56 1/31/57	1/24/57	I 14 sessions 6 hr weekly Thursdays	150
Cardiology II (PM62)	Montefiore Hospital 210th St and Bainbridge Ave New York	C	SCI	Lab Pt Dem LC WR Sem Lec	63	9/27/56 1/31/57	1/24/57	I 18 sessions 3½ hr weekly Thursdays	150
Clinical Cardiology (PM29)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SCI	Pt Dem LC Lec	20	10/10/56	12/18/56	I 10 sessions 2 hr weekly Tuesdays	50
Medicine (PM 31)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SC	Pt Dem LC Lec	70	1/28/57	2/ 8/57	C 10 days	150
Heart Disease and Circulatory Dynamics (PM 48)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SCI	LC Lec	20	2/19/57	4/23/57	I 10 sessions 2 hr weekly, Tuesdays	50
Diagnosis & Treatment of Diseases of the Heart	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem LC WR Sem Lec AV	30	Arranged		C 15 days	75
5414 Cardiac Roentgenology	New York University Post Graduate Medical School 550 First Ave New York	C	BC	Pt Dem Lec AV	14	11/ 1/56 2/28/57	11/ 2/56	C 2 days	35
415 A Modern Concepts in Etiology Diagnosis and Treatment of Heart Diseases	New York University Post Graduate Medical School 550 First Ave New York	C	SC	Pt Dem Lec	35	1/ 7/57	1/11/57	C 5 days	55
418-A Modern Trends in Diagnosis and Treatment of Congenital Heart Disease	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Pt Dem Lec AV	21	2/ 4/57	2/ 6/57	C 3 days	55
410 A Cardiology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec AV	21	4/11/57	5/23/57	I 7 sessions 3 hr weekly, Thursdays	85
408 A Cardiology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem AV Lec	105	5/ 6/57	5/24/57	C 15 days	250
Cardiovascular Diseases	Rochester General Hospital 501 W Main St Rochester N Y	C	SCI	Pt Dem LC WR Lec Pan O	24	10/11/56	1/31/57	I 12 sessions 2 hr weekly Thursdays	15
Seminars on Heart Disease	St Francis Hospital and Sanatorium Roslyn New York	C	SCI	Sem Lec O	16	10/56	5/57	I 8 sessions 2 hr monthly Tuesdays	Unknown

St Francis Hospital and Sanatorium	Postgraduate Course in Cardiology Roslyn New York	G	SC	Lt Dem TC WR Lec Pan O AV	80	1/17/57	1/27/57	C 10 days	Unknown
Clinical Cardiology	St Michael s Hospital 306 High St Newark N J	C	SCI	Pt Dem Lec Pan O AV	35	10/ 3/56	2/20/57	I 10 sessions 1½ hr twice monthly Wednesdays	25
The Prevention and Management of Cardiac Arrest	Cleveland Area Heart Assn 2073 East 9th St Cleveland course at Western Reserve University School of Medicine Cleveland	B	SCI	Lab Sur Lec AV FPP	60	9/56	6/57	I 20 sessions 3 hr monthly Friday and Saturday	20 to 40
Recent Advances in Cardiovascular Disease	American College of Physicians 4200 Pine St Philadelphia course at Mt Sinai Hospital New York	S	SC	Lec Pan	40	10/ 8/56	10/12/56	C 5 days	30 Members 60 Non members
Post Graduate Cardiology #1	Hahnemann Medical College and Hospital 230 N Broad St Philadelphia	G	SCI	Pt Dem Lec Pan AV	Unknown	10/56	5/57	I 2½ hr Thursdays	150
Post Graduate Cardiology #2	Hahnemann Medical College and Hospital 230 N Broad St Philadelphia	G	SCI	Pt Dem Lec Pan AV		10/56	5/57	I 2½ hr Wednesdays	150
Functional and Degenerative Heart Disease	University of Vermont Burlington Vt course at DeGoesbriand Memorial Hospital Burlington Vt	S	SC	Lab Pt Dem WR Lec	15	10/22/56	10/26/56	C 5 days	Nil
Annual Symposium of Washington State Heart Association	University of Washington School of Medicine Seattle 5	G	BC	Lec Pan O	9	9/28/56	9/29/56	C 1½ days	Unknown

CLINICAL PATHOLOGY

A series of courses covering the serology of syphilis management and control of syphilis serology tests for syphilis using the Treponema Pallidum	Director Venereal Disease Research Laboratory Division of Special Health Services PHS Department of Health Education and Welfare P O Box 185 Chamblee Georgia	Tech	SC	Lec Lab AV	Unknown	Monthly begin Sept		C 11 days	Unknown
A series of courses on Bacteriology Intestinal Parasites Blood Parasites Virus and Rickettsial Diseases Cutaneous Pathogenic Fungi Subcutaneous and Systemic Fungi Mycoses Rabies Tuberculosis Malaria C Diphtheriae Salmonella Typhosa Leptospirosis Streptococci	Communicable Disease Center U S P H S P O Box 185 Chamblee Georgia	Principally technical personnel open to M D s	O	Lab Lec O AV	10 to 150	By Arrangement	By Arrangement	Arranged	Nil
Blood Bank Management	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	S	BC	Sem Lec Pan O AV	12	11/15/56	11/16/56	C 2 days	15
Laboratory Methods in Blood Banks (PM 72)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SCI	Lab	21	1/ 2/57	5/ 7/57	I 18 sessions 4 hr weekly Tuesdays	50

DERMATOLOGY

Dermatology in General Practice	University of California School of Medicine Los Angeles 24	G	SCI	Pt Dem Lec Pan AV	12	11/14/56 2/13/57	12/19/56	I 6 sessions 2 hr weekly Wednesdays	30
Dermatology For General Practitioners	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	B	BC	Lec Pan	20	7/57	7/57	C 3 days	30
Dermatology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem TC	25	9/20/56 3/21/57	11/29/56	I 10 sessions 2½ hr weekly Thursdays	100
Dermatology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem TC WR Lec O	60	10/15/56 5/ 6/57	10/27/56	C, 10 days	100
Clinical Dermatology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem TC WR O	60	Arranged		C 12 days	75
Clinical Dermatology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem TC WR O	150	Arranged		C 24 days	125
Course III Dermatology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem TC WR Sur Sem Lec O FPP	1500	Arranged		C 12 mo	1000
Dermatology and Syphilology Postgraduate Course	State University of Iowa Medical School Iowa City	B	BC	Pt Dem Lec Pan O AV	6	10/25/56	10/25/56	C 1 day	10
Surgical Planing For Dermatologists	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S	BC	Lab WR, Sem Lec	25	9/13/56	9/15/56	C 3 days	100
Dermatology and Syphilology 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	S	SC	Lab Pt Dem TC WR Sem Lec	Unknown	10/ 1/56	9/30/57	C 1 yr	800

Key will be found on page 1278

DERMATOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fe
Dermatology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	10	11/23/56	11/24/56	C 2 days	1
Dermatology for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	1/ 7/57	1/ 9/57	C 3 days	30
Diagnosis and Treatment of Common Skin Disorders	Joint Committee on Postgraduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SCI	LC Lec	8	10/56 4/57	12/56	I 8 sessions 1 hr weekly Tuesdays	20
Dermatology (PM 60)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Pt Dem LC Lec, AV	18	1/ 7/57	3/ 4/57	I 9 sessions 2 hr weekly, Mondays	40
521 A Comprehensive Review in Dermatological Histopathology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Lec	35	9/17/56	9/21/56	C 5 days	85
524 A Dermatology and Syphilology (Designed for Pediatricians)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem LC, Lec	35	9/24/56	9/28/56	C 5 days	85
522 A Seminar in Dermatology and Syphilology (Designed for Non Dermatologists)	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem LC Lec Pan	35	1/14/57	1/18/57	C, 5 days	85
523-A Symposium on Dermatology and Syphilology (For Dermatologists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem LC Lec	35	5/13/57	5/17/57	C 5 days	100

ELECTROCARDIOGRAPHY
(See also Cardiovascular Disease)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fe
Electrocardiography	University of California School of Medicine Los Angeles 24	G	SCI	Lec AV	12	11/21/56	12/26/56	I 6 sessions 2 hr weekly Wednesdays	20
835 Home Course in Electrocardiography	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33	G	HS (C)	EPP	52	7/13/56 10/19/56 1/18/57 4/19/57		1 year	100
834—Practical Electrocardiography	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33	G	BC	Lec Pan O	23	2/57	2/57	C 3 days	65
Medicine 213 Elementary Electrocardiography	Yale University School of Medicine 333 Cedar St New Haven Conn	G	SCI	Lec AV	12	10/ 2/56	12/18/56	I 12 sessions 1 hr weekly Tuesdays	50
Clinical Electrocardiography	Colorado Heart Association 901 E 17th Ave Denver course at Veterans Administration Hospital Denver	G	BC	Lec, Pan AV	18	11/ 5/56	11/ 7/56	C 3 days	15 outside Colorado 5 Colorado
Fundamentals of Electrocardiography	University of Colorado Medical Center 4200 E 9th Ave Denver 20	G	SCI	Lec	24	10/56	12/56	I 12 sessions 2 hr weekly	10
Clinical Electrocardiography	University of Colorado Medical Center 4200 E 9th Ave Denver 20	B	BC	Pt Dem Lec Pan	24	11/ 5/56	11/ 7/56	C 3 days	15
Elementary Clinical Electrocardiography	Lawrence and Memorial Associated Hospital Montauk Ave New London Conn	G	SCI	Lec, O AV	34	9/15/56	2/57	I 17 sessions 2 hr weekly Tuesdays	70
Basic Electrocardiography	The Memorial Hospital 1501 Van Buren St Wilmington Del	G	SCI	Lec	12	9/56	12/56	I 12 sessions 1 hr weekly Tuesdays	Unknown
Advances in Electrocardiography	Mount Sinai Hospital of Greater Miami 4300 Alton Rd Miami Beach Fla	S	SC	Lab Pt Dem Lec Pan O AV	48	Unknown		C 6 days	30
Advance Course in Electrocardiography	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Lec O	40	9/17/56	9/22/56	C 6 days	100
Electrocardiography & Heart Disease	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem LC Lec O EPP	70	9/26/56 2/ 6/57	11/28/56	I 10 sessions 7 hr weekly, Wednesdays	100
Electrocardiography & Heart Disease	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem Lec O EPP	70	10/ 8/56 3/11/57 7/ 8/57	10/20/56	C 2 wk	100
Advanced Electrocardiography—Complex Arrhythmias	Michael Reese Hospital 29th St and Ellis Ave Chicago 16	S	SC	Sem Lec Pan O AV EPP	35	12/ 3/56	12/ 7/56	C 5 days	100
Electrocardiographic Interpretation	Michael Reese Hospital 29th St and Ellis Ave Chicago 16	B	SCI	Lec Pan	24	2/[illegible]/57	4/24/57	I 12 sessions 2 hr weekly Wednesdays	[illegible]

Electrocardiographic Interpretation	Michael Reese Hospital 29th St and Ellis Ave Chicago 16	B	SC	Sem Lec Pan AV FPP	30	9/10/57	9/20/57	C 10 days	150
Clinical Electrocardiography	Indianapolis General Hospital 10th and Locke St Indianapolis	G	SCI	Lec O AV	24	9/6/56	11/29/56	I 12 sessions 2 hr weekly Thursdays	17
Postgraduate Course in Basic Electrocardiography	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec O AV	23	3/4/57	3/6/57	C 3 days	30
Interpretation of Electrocardiograms—Course I	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	HS(C)			10/10/56 4/10/57	4/19/57	6 mo	18
Interpretation of Electrocardiograms—Course II	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	HS(C)			11/22/56 5/10/57	5/23/57	6 mo	17
Clinical Application of Electrocardiography	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	BC	Lec Pan O AV	30	3/18/57	3/21/57	C 4 days	50
Electrocardiography	Tulane University School of Medicine 1430 Tulane Ave New Orleans	G	SC	Lab Sem Lec FPP	24	11/20/56	12/8/56	C 10 days	100
Practical Electrocardiography Course B	Beth Israel Hospital 330 Brookline Ave Boston	G	SCI	Lec O AV FPP	30	10/3/56	12/5/56	I 10 sessions 3 hr weekly Wednesdays	100
Practical Electrocardiography Course A	Beth Israel Hospital 330 Brookline Ave Boston	G	SC	Lec O AV FPP	30	11/5/56	11/9/56	C 5 days	100
EKG Clinics Course B	Beth Israel Hospital 330 Brookline Ave Boston	G	SCI	Lec O AV FPP	30	3/6/57	5/8/57	I 10 sessions 3 hr weekly Wednesdays	100
EKG Clinics Course C	Beth Israel Hospital 330 Brookline Ave Boston	G	SC	Lec O AV FPP	30	1/23/57	1/25/57	C 5 days	100
Electrocardiography I	Tufts University School of Medicine Post Graduate Division 171 Harrison Ave Boston	G	SC	Pt Dem Lec Pan AV	25	12/17/56	12/21/56	C 5 days	40
Electrocardiography II	Tufts University School of Medicine Post Graduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan	18	5/13/57	5/15/57	C 3 days	25
Electrocardiographic Diagnosis	University of Michigan Medical School Department of Post Graduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec Pan O AV	34	3/25/57	3/30/57	C 5½ days	75
Introduction to Electrocardiography	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	SC	Lec O FPP	30	5/6/57	5/10/57	C 5 days	50
Electrocardiography	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Lab Lec Pan O AV	24	10/1/56	10/4/56	C 4 days	40
Principles of Electrocardiography	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Lec	12	9/13/56	10/18/56	I 6 sessions 2 hr weekly Thursdays	60
Advanced Course in Interpretation of Electrocardiograms	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Lec	12	10/25/56	12/6/56	I 6 sessions 2 hr weekly Thursdays	60
Clinical Correlation of Electrocardiograms with Disease Processes (Hospitalized Patients)	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Pt Dem FPP	24	Arranged		I 12 sessions 2 hr each	60
Basic Electrocardiography	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec	12	10/56	11/56	I 12 sessions 1 hr twice weekly Mondays Fridays	50
Interpretation of the Electrocardiogram	Joint Committee on Post Graduate Education 1313 Bedford Ave , Brooklyn 16 N Y course at Coney Island Hospital Brooklyn N Y	G	SCI	Lec AV	100	10/56 4/57	12/56	I 10 sessions 10 hr weekly Tuesdays	50
Introduction to Electrocardiography	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BCI	Sem Lec O AV	12	9/20/56	10/11/56	I 4 sessions 1 hr weekly Thursdays	25
Electrocardiographic Interpretation	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	SCI	Lab Lec O AV FPP	24	10/18/56	12/13/56	I 8 sessions 3 hr weekly Thursdays	50
Electrocardiography	Community Hospital at Glen Cove Walnut Ave Glen Cove N Y	G	SCI	Sem Lec O	50	1/6/57	3/10/57	I 10 sessions 2 hr weekly Sundays	40
Medicine (PM 63A)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Sem AV	38	9/25/56 2/5/57	1/29/57	I 10 sessions 2 hr weekly Tuesdays	100
Elementary Electrocardiography (PM41)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	SC	PC Lec	30	10/15/56 1/14/57	10/19/56	C 5 days	75

Key will be found on page 1278

ELECTROCARDIOGRAPHY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Advanced Electrocardiography (PM42)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	SC	LC Lec	30	10/22/56 1/11/57	10/26/56	C 5 days	75
Spatial Vectorcardiography (PM43)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	SC	LC Lec	28	12/3/56	12/8/56	C 6 days	75
Electrocardiographic Interpretation	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem LC WR, Sem Lec AV	20	Arranged		C 10 days	75
Practical Electrocardiography	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem LC Sem, Lec AV	10	Arranged		C 5 days	100
5416-A Fundamentals of Clinical Electrocardiographic Interpretation	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec	32	11/7/56	3/6/57	I 16 sessions 2 hr weekly Wednesdays	50
5412 A Electrocardiography	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Lec AV	35	11/12/56 3/18/57	11/16/56	C 5 days	85
5411 A Clinical Electrocardiography	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec AV	10½	4/11/57	5/23/57	I 7 sessions 1½ hr weekly Thursdays	50
Basic Electrocardiography	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SCI	Lec AV	14	10/11/56	11/22/56	I 7 sessions 2 hr weekly, Thursdays	15
Electrocardiographic Review, Primary in June Advanced in January	Duke University School of Medicine Durham N C	G	BC	Lab Pt Dem LC, WR Pan	18	6/57 1/57	6/57	C 3 days	100 Paid by N C Health Department
Electrocardiography and Other Graphic Methods in Cardiovascular Diagnosis	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SCI	Lec Pan	30	1/9/57	3/13/57	I 10 sessions 3 hr weekly, Wednesdays	75
Electrocardiology	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	B	SC	Lab Pt Dem Lec, TV	30	12/3/56	12/7/56	C 5 days	45
Symposium on Electrolytes and Circulation	DeGoesbriand Memorial Hospital Burlington Vt	S	BC	Pt Dem Sem Lec, Pan	22	9/8/56	9/10/56	C 3 days	10

ELECTROENCEPHALOGRAPHY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Electroencephalography	Program Director 10th Conn Post Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine 333 Cedar St New Haven Conn	S	BCI	Lab Lec O AV	7½	10/22/56	11/5/56	I 3 sessions 2½ hr weekly Mondays	Nil
Clinical Electroencephalography (PM33)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	S	SCI	Lab LC	45	9/27/56	1/10/57	I 15 sessions 3 hr weekly Thursdays	100
642 A Electroencephalography	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab	160	Arranged		C 8 weeks	300
Electroencephalography	Graduate School of Medicine University of Pennsylvania Philadelphia	G	SC	Lab Lec O		By special arrangement		C 2 wk specially arranged	200

ENDOCRINOLOGY
(See also Internal Medicine)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Basic Aspects of Endocrinology and Metabolism	University of California School of Medicine Los Angeles 24	G	SCI	Lec Pan AV	24	1/14/57	4/1/57	I 12 sessions 2 hr weekly Mondays	50
Metabolism and Endocrinology	University of California Medical Center Second and Parnassus Aves San Francisco	C	BC	Lec AV	14	10/16/56	10/17/56	C 2 days	40
Live Clinics and Panel Discussions in Clinical Endocrinology—840	University of Southern California School of Medicine Post Graduate Division 2025 Zonal Ave Los Angeles 33 course at Los Angeles County Hospital	S	BC	Pt Dem LC WR Lec Pan, O	20	11/29/56	12/1/56	C 3 days	65
Endocrinology	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	G	SCI	Lec	Unknown	1/57	3/57	I once weekly 12 weeks	10
Metabolic Endocrinology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn N Y course at Maimonides Hospital Brooklyn N Y	G	SCI	Pt Dem Lec O	15	10/56	12/56	I 10 sessions 1½ hr weekly Tuesdays	20

Medical and Gynecologic Endocrinology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Jewish Hospital Brooklyn N Y	G	SCI	IC Lec	10	4/57	6/57	I 10 sessions 1 hr weekly Fridays	50
Endocrine Disease	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BO	Pt Dem IC WR Sem Lec Pan O AV	11	1/16/57	1/17/57	O 2 days	30
493-A Endocrinology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	22	4/ 8/57	5/31/57	I 22 sessions 1 hr 3 times weekly Mondays Thursdays Fridays	45
The Eighth Postgraduate Assembly of the Endocrine Society	The University of Texas Post Graduate School of Medicine Texas Medical Center Houston 25 Texas	S	SC	Pt Dem Lec Pan	33	10/22/56	10/27/56	C 6 days	100

ENDOSCOPY

Gastroscopy and Gastroenterology	Cook County Graduate School of Medicine 707 S Wood Street Chicago 12	G	SC	Lab Pt Dem IC Lec O AV FPP	10	9/10/56 11/ 5/56 3/18/57	9/22/56	C 12 days	200
Cystoscopy	Cook County Graduate School of Medicine 707 S Wood Street Chicago 12	G	SC	Lab Pt Dem IC Lec O EPP	80	9/10/56 9/24/56 10/22/56 11/ 5/56 11/26/56 12/10/56 1/ 7/57 1/21/57 2/ 4/57 2/18/57 3/ 4/57 3/18/57 4/15/57 4/29/57 5/13/57 6/ 3/57 6/17/57 7/ 8/57 7/22/57 8/ 5/57	9/21/56	C 10 days	150
Clinical Bronchoscopy	Cook County Graduate School of Medicine 707 S Wood Street Chicago 12	G	SC	Lab Pt Dem IC Lec O FPP	15	9/17/56 10/15/56 11/19/56 12/17/56 1/21/57 2/18/57 3/18/57 4/15/57 5/20/57 6/17/57	9/21/56	C 5 days	100
Bronchoesophagology	University of Illinois College of Medicine 1853 W Polk St Chicago 12	S	SC	Lab Pt Dem IC WR Sem Lec Pan O AV FPP	81	11/ 5/56 spring/57	11/17/56	C 12 days	150
Bronchoscopy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Sur Lec Cad AV	8	Arranged		I 8 sessions 1 hr weekly Wednesdays	150
497-A Gastroscopy and Flexible Tube Esophagoscopy	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem IC EPP	30	9/10/56 12/56 3/ 4/57	12/10/56	I 30 sessions 1 hr 3 times weekly Mondays Wednesdays Fridays	300
96-A Endoscopy Bronchoesophagology and Laryngology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Sem Cad Lec	35	2/25/57	3/ 1/57	C 5 days	100
Bronchoesophagology	Temple University School of Medicine and Hospital 3400 N Broad St Philadelphia 40	B	SC	Lab Pt Dem IC Sem Lec Pan O AV FPP	80	9/17/56 Dates to be announced (given 2 or 3 times a year according to demand)	9/28/56	C 11 days	250

FORENSIC MEDICINE

Forensic Pathology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	S	SC	Lab Lec	40	11/ 5/56	11/ 9/56	C 5 days	Nil

Key will be found on page 1278

FORENSIC MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
[illegible]-A Radiological Aspects of Medico Legal Medicine	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lec	18	9/25/56	12/18/56	I 12 sessions 1½ hr weekly, Tuesdays	35
33-A Toxicology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem Lec Pan	Vary	Unknown		C	100 per mo
Investigation of Homicide	University of Cincinnati College of Medicine Cincinnati course at Institute of Industrial Health Cincinnati	S	SC	Sem Lec Pan AV	42	11/12/56	11/17/56	C 6 days	35

FRACTURES

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Treatment of Fractures	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Brooke Army Medical Center San Antonio Tex	B	BC	Sem Lec	21	3/13/57	3/15/57	C 3 days	Nil
Trauma	American College of Surgeons 40 E Erie St Chicago 1 Clinical Congress at San Francisco	S	BC	Sem Lec Pan O AV	12	10/ 8/56	10/11/56	C 4 days	5
Basic Principles Diagnosis and Treatment of Fractures	American Fracture Assn 610 Griesheim Bldg Bloomington Ill course at Cook County Hospital and Drake Hotel Chicago	C	BC	Unknown	12	11/28/56	11/29/56	C 2 days	5
Fracture Treatment	American Fracture Assoc 610 Griesheim Bldg Bloomington Ill	G	BC	Sem Lec AV	20	11/29/56	12/ 1/56	C 2½ days	15
Fractures	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem LC WR Sur Lec O	60	9/19/56 3/20/57	11/21/56	I 10 sessions 6 hr weekly, Wednesdays	125
Course III Fractures and Traumatic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sur AV	86	10/15/56 11/26/56 3/11/57 6/17/57	10/27/56	C 12 days	150
Course II Clinical Fractures	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sur O	20	Arranged		C 5 days	50
Postgraduate Course on Fractures	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	7	3/13/57	3/13/57	C, 1 day	10
Treatment of Fractures and Other Traumatic Conditions	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Pt Dem LC Lec Pan AV	46	10/22/56	10/27/56	C, 6 days	150
Fractures for General Physicians	Continuation Medical Education 1312 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Pt Dem Lec O	15	11/19/56	11/21/56	C 3 days	30
668-A Diagnosis and Treatment of Fractures and Dislocations	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem LC WR Lec	70	1/28/57	2/ 9/57	C 12 days	125

GASTROENTEROLOGY
(See also Proctology and Radiology)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Gastrointestinal Physiology and Disease	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	B	SCI	Lec	Unknown	4/57	6/57	I Once weekly 12 weeks	10
Gastroenterology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sem Lec O EPP	60	10/22/56 5/13/57	11/ 3/56	C 12 days	100
Postgraduate Course in Upper Gastrointestinal Bleeding	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	7	3/14/57	3/14/57	C 1 day	10
Gastroenterology Conference	State University of Iowa Iowa City	B	BC	Pt Dem Lec Pan O AV	6	1/16/57	1/16/57	C 1 day	10
Gastroenterology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	BC	Pt Dem LC Sem Pan O AV	14	1/16/57	1/17/57	C 2 days	30
In Residence Training in Gastroenterology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	MT	Lab Pt Dem LC WR Lec	Unknown	Arranged		1 mo	50 to 100
Recent Advances in Gastroenterology	American College of Physicians 4200 Pine St Philadelphia 4 course at Boston University School of Medicine Boston	S	SC	Lec Pan	40	4/ 1/57	4/ 5/57	C 5 days	30 members 60 non members

Gastroenterology

Diseases of Gastrointestinal Tract	Tufts University School of Medic Post Graduate Division 171 Harrison Ave Boston			Pt Dem Lec Pan AV	11	10/18/		[illegible] days	50
Fifth Annual Spring Postgraduate Assembly	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem IC Lec Pan O AV	30	1/16/57	1/19/57	C [illegible] days	50
Postgraduate Gastroenterology	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Pt Dem Sem Lec Pan O AV	19	1/ 9/57	1/11/57	C 3 days	30
Medicine (IM 70)—Gastroenterology	American College of Gastroenterology 33 W 60th St New York course at Hotel Roosevelt New York	B	BC	IC Lec	18	10/18/56	10/21/56	C 3 days	35 for members 50 for nonmembers
Medicine (PM 73)	Montefiore Hospital 210th St & Bainbridge Ave New York	G	SCI	WR Sem Lec AV	21½	9/11/56	12/18/56	1 15 sessions 1½ hr weekly Tuesdays	75
Gastroenterology (IM 15)	Montefiore Hospital 210th St & Bainbridge Ave New York 67	G	SCI	WR Sem AV	50	1/15/57	1/30/57	1 10 sessions 1½ hr weekly Tuesdays	75
Clinical Gastroenterology	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SC	IC Lec	30	1/ 8/57	1/12/57	C 5 days	75
612-A Clinical Gastroenterology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem IC WR Lec	60	10/ 1/56 1/ 1/57	10/31/56	C 21 days	75
PM A Gastroenterology	New York University Post Graduate Medical School 550 First Avenue New York	G	SC	Lab Lec	15	10/29/56	11/ 2/56	C [illegible] days	75
Latest Advances in Gastroenterology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	21	1/10/57	[illegible]/29/57	1 8 sessions 1 hr weekly Wednesdays	40
Diseases of the Lower Bowel and Rectum—Part I	American College of Physicians 4200 Pine St Philadelphia 4 course at University of Pennsylvania Graduate School of Medicine Philadelphia	S	SC	Lec Pan	10	12/ 3/56	12/ 7/56	C [illegible] days	30 ACP members 60 non members
Diseases of the Lower Bowel and Rectum Part II	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	SCI	Lec AV	12	12/56		1 6 sessions 2 hr twice weekly	15
	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	BCI	WR Sur	8	12/56		1 3 sessions 1½ hr weekly Tuesdays	10

GENERAL PRACTICE
(See also all other categories)

Alabama Academy of General Practice Seminar	Medical College of Alabama 1919 S [illegible]th Ave Birmingham Ala	G	BC	Pt Dem IC Sem Pan	12	9/ 3/56 1/ 9/57	8/ 1/56	C [illegible] days	Nil
[illegible]th Annual Circuit Postgraduate Lectures and Conferences for Sacramento Valley	Committee on PG Activities California Medical Assn 417 S Hill St Rm 838 Los Angeles course at various hotels in Dunsmuir Chico Marysville and Auburn Calif	B	CC	Sem Lec	10 in each city	Fall/56		8 days	,,
[illegible]th Annual Circuit Postgraduate Lectures and Conferences for North Coast Counties	Committee on PG Activities California Medical Assn 417 S Hill St Rm 838 Los Angeles course at hospitals in Eureka Ukiah Woodland and Napa Calif	B	CC	Sem Lec	10 in each city	Fall/56 Spring/57		8 days	,,
[illegible]th Annual Medical & Surgical Institute	Committee of PG Activities California Medical Assn 417 S Hill St Rm 838 Los Angeles course at Veterans Memorial Auditorium Santa Rosa Calif Laguna Hotel Laguna Beach Calif Golden Bough Theater and La Playa Hotel Carmel Calif Hacienda Hotel Fresno Calif Cal Neva Hotel Lake Tahoe Calif	B	CC	Sem Lec Pan	11	Spring/57		C [illegible] days	10
Medical Surgical Lecture Series	University of California School of Medicine Los Angeles 24	G	SCI	Lec Pan AV	10	9/12/56	6/12/57	1 30 sessions 2 hr weekly Wednesdays	60
Medical Photography	University of California School of Medicine Los Angeles 24	G	SCI	Lab Lec	12	3/11/57	4/15/57	1 6 sessions [illegible] hr weekly Mondays	80
Postgraduate Course for Physicians	Contra Costa County Hospital Martinez Calif	G	R	Lec	16	2/ 1/57	4/ 8/57	1 8 sessions 2 hr weekly Mondays	10

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GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Annual Postgraduate Assembly	San Diego County General Hospital North End of Front St San Diego 3 Calif	S	BC	Lec Pan O AV	14	9/19/56	9/20/56	C 2 days	Nil
Medicine for General Practitioners	University of California Medical Extension Second and Parnassus Aves San Francisco	G	SCI	Lec	24	9/56	12/56	I 12 sessions 2 hr weekly Tuesdays	50
Saint John's Hospital Postgraduate Assembly	Saint John's Hospital 1328 22nd St Santa Monica Calif	G	BCI	Pt Dem Wk Sem Lec Pan O	28	9/10/56	9/12/56	I 8 hrs daily for 3 days 2 hr for 2 nights	10
Glockner Penrose Graduate Education Clinics	Glockner Penrose Hospital 2200 N Tejon St Colorado Springs Colo	G	BC	Pt Dem LC Lec	4	9/6/56	9/6/56	C 1 day	10
Annual Summer Clinics	Children's Hospital 1056 E 19th Ave Denver 18	G	BC	Pt Dem LC Sem Lec Pan O AV	18	6/19/57	6/21/57	C 3 days	25
General Practice Review	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	G	SC	Pt Dem Lec Pan O AV	45	1/14/57	1/19/57	C 6 days	60
Eighth Annual Colorado Intern Resident Clinics	University of Colorado Medical Center 4200 E 9th Ave Denver 20	B	BC	Pt Dem LC Lec Pan	16	6/57	6/57	C 2 days	Nil
Colorado Medical Alumni Clinics	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	B	BC	Lec Pan	8	6/57	6/57	C 1 day	Nil
Management of Mass Casualties	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington D C	G	SC	Sem Lec Pan O AV	44	10/29/56 2/4/57 6/17/57	11/3/56	C 5½ days	Nil
25th Annual Graduate Short Course	College of Medicine University of Florida Gainesville Florida	G	SC	Sem Lec Pan AV	30	6/24/57	6/28/57	C 5 days	10
Medicine for Today	Illinois Academy of General Practice 14 E Jackson Blvd Chicago course at Edwardsville Sanitarium Edwardsville Ill St Elizabeth Hospital Belleville Ill Burnham City Hospital Nurses Home Champaign Ill Swedish Covenant Hospital Chicago Illini Union Bldg Chicago Englewood Hospital Chicago St James Hospital Chicago Heights Ill St Elizabeth Hospital Danville Ill St John's Hospital Springfield Ill St Anthony Hospital Rockford Ill Wabash General Hospital Mt Carmel Ill Public Hospital Moline Ill Sanatarium Hospital Hinsdale Ill St Joseph's Hospital Joliet Ill Elks Club Herrin Ill Community Hospital Geneva Ill Memorial Hospital Elmhurst Ill St Anthony Hospital Effingham Ill	G	CC	Lec, Pan O, AV	12	Wk of 9/24/56 Wk of 4/1/57	11/2/56	2 hr each wk for 6 wk	40
Refresher Course for the General Physician	State University of Iowa Medical School Iowa City	G	BC	Pt Dem Lec Pan O AV	24	2/20/57	2/23/57	C 4 days	35
Review of General Medicine, General Surgery	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	SCI	Pt Dem LC Lec, Pan O, AV	28	10/18/56	4/18/57	I 7 sessions 4 hr monthly Thursdays	20 non academy 10 academy members
General Medicine and General Surgery	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks course at Concordia Ks Colby Ks Garden City Ks Great Bend Ks Manhattan Ks Hutchinson Ks Arkansas City Ks Emporia Ks	B	CO	Pt Dem LC Lec Pan O AV	33	12/4/56 12/5/56 12/6/56 12/7/56 12/4/56 12/5/56 12/6/56 12/7/56	5/3/57	1 day per mo	30
Dentistry and Medicine	University of Kansas City School of Dentistry at University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	G	BC	LC Lec Pan, O, AV	7	3/6/57	3/6/57	C 1 day	25
Recent Advances in Medicine and General Practice	Post Graduate Institute Doctors Hospital 2724 N Charles St Baltimore	G	SCI	Pan	10	10/30/56	11/30/56	I 6 sessions 2 hr Tuesdays 1½ hr Fridays	3
Special Problems in General Practice	Post Graduate Institute Doctors Hospital 2724 N Charles St Baltimore	G	SCI	Pan	10	4/30/57	6/7/57	I 6 sessions 2 hr Tuesdays 1½ hr Fridays	3

General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at St Josephs Hospital Providence R I	G	SCI	Pt Dem Pan O AV	16	9/30/56	11/21/56	I 8 sessions 2 hr weekly Wednesdays	3[illegible]
General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at Norfolk County Hospital Braintree Mass	G	SCI	Pt Dem Pan O AV	21	10/3/56	12/20/56	I 12 sessions 2 hr weekly Wednesdays	49
General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at St Lukes Hospital New Bedford Mass	G	SCI	Pt Dem Pan O AV	24	10/3/56	12/20/56	I 12 sessions 2 hr weekly Wednesdays	48
General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at St Johns Hospital St Joseph Hospital and Lowell General Hospital Lowell Mass	G	SCI	Pt Dem Pan O AV	12	10/10/56	11/21/56	I 6 sessions 2 hr weekly Wednesdays	21
Modern Concepts of Diagnosis and Therapy of Everyday Practice	Post Graduate Medical Institute 30 Fenway Boston course at Lemuel Shattuck Hospital Jamaica Plain Mass	G	SCI	Pt Dem Pan O AV	[illegible]	10/15/56	5/2/57	I 25 sessions 2 hr weekly Wednesdays	100
Modern Concepts of Diagnosis and Therapy of Everyday Practice	Post Graduate Medical Institute 30 Fenway Boston course at Holyoke Soldiers Home Holyoke Mass	G	SCI	Pt Dem Pan O AV	20	10/[illegible]/56	12/11/56	I 10 sessions 2 hr weekly Fridays	40
General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at St Lukes Hospital Pittsfield Mass	G	SCI	Pt Dem Pan O AV	20	10/25/56	12/11/56	I 10 sessions 2 hr weekly Wednesdays	40
General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at Salem Hospital Salem Mass and Lynn Hospital Lynn Mass	G	SCI	Pt Dem Pan O AV	21	1/2/57	3/20/57	I 12 sessions 2 hr weekly Wednesdays	48
Community Hospital Program in General Medicine	Post Graduate Medical Institute 30 Fenway Boston course at Worcester County Hospital St Vincent Hospital Memorial Hospital and Worcester City Hospital Worcester Mass	G	SCI	Pt Dem PC Pan O AV	16	1/9/57	2/27/57	I 8 sessions 2 hr weekly Wednesdays	32
Fluid & Electrolyte Disturbances	Tufts University School of Medicine Post Graduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	1/10/57	1/12/57	C 3 days	20
Practitioners Course (Extramural course in 18 centers in Michigan)	University of Michigan School of Medicine Ann Arbor Mich course at various centers in state	G	CC	PC Lec AV	Unknown	Unknown		2 days in each center 1 in spring 1 in fall	Unknown
Fourth Symposium on Office Procedures for the Generalist	Education Program Committee Michigan Academy of General Practice 950 Maccabees Bldg Detroit course at Olds Hotel Lansing Mich	G	BC	Sem Lec O	5	1/9/57	3/9/57	O 1 day	Nil
Allergy and Chest Diseases for General Physicians	Continuation Medical Education 13[illegible] Mayo Memorial University of Minnesota Minneapolis	G	BC	Lec O	15	1/11/57	1/13/57	O 3 days	30
Fall Refresher	Minnesota Academy of General Practice 10th Avenue S Hopkins Minn course at Prom Ball Room St Paul	G	BC	Lec Pan AV	7	10/17/56	10/17/56	O 1 day	Nil
Regional Postgraduate Courses	Nebraska State Medical Association 1315 Sharp Bldg Lincoln Neb course at Alliance Neb North Platte Neb McCook Neb Hastings Neb York Neb Norfolk Neb	G	CC	Lec O AV	5	9/24/56 9/25/56 9/26/56 9/27/56 9/28/56 9/29/56		1 day	Nil
Second Annual Trauma Day	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Lec O AV	6	5/1/57	5/1/57	O 1 day	10
Refresher Course Hospital Administration	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Sem Lec Pan	15	9/13/57	9/15/57	O 3 days	25
Two Way Radio Conferences Albany Medical College to Area Hospital	Albany Medical College 47 New Scotland Ave Albany N Y	G	CC (R)	Two Way Radio	21	11/[illegible]/56	5/3/57	1 hr a day for 21 days	Nil
Medical Clinical Seminar	Albany Medical College 47 New Scotland Ave Albany N Y	G	BC	Sem Lec Pan	6	1/10/57	1/10/57	O 1 day	10
Recent Advances in Clinical Medicine	Albany Medical College 47 New Scotland Ave Albany N Y	G	BC	WR Sem Lec Pan	1[illegible]	1/10/57	1/12/57	C 2½ days	25

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GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Recent Advances in Clinical Practice	University of Buffalo School of Medicine 3435 Main St Buffalo, N Y	G	SC	Pt Dem LC WR Sem Lec Pan O AV	39	9/10/56	9/15/56	C 6 days	75
Minor Surgery and Office Orthopedics	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BC	Pt Dem LC Sem Lec Pan O AV	11	12/12/56	12/13/56	C 2 days	30
Two Way Radio Postgraduate Medical Conference	Glens Falls Hospital 100 Park St Glens Falls N Y	G	BCI	Lec Pan O	50	9/1/56	8/31/57	I 50 sessions 1 hr weekly Mondays	Nil
Postgraduate Medical Seminars	Glens Falls Hospital 100 Park St Glens Falls N Y	G	SCI	Pt Dem WR Sem Lec Pan O AV	30	9/1/56	6/30/57	I 10 sessions 3 hr monthly, Thursdays	Nil
Graduate Symposium on Geriatric Medicine	American Geriatrics Society 25 Mechanic St Wakefield R I course at Hotel Roosevelt New York	G	BC	Pt Dem Lec Pan O AV	16	11/29/56	11/30/56	C 2 days	Nil
Postgraduate Radio Program	The New York Academy of Medicine Two E 103 St New York 29	G	HS(R)	Lec Pan	52	9/56	9/57	I 52 sessions 1 hr weekly Thursdays	Unknown
Selected Subjects of Current Significance	The New York Academy of Medicine Two E 103 St New York 29	G	SC	Lec, Pan O AV	17½	10/15/56	10/26/56	C 10 days	10
Monthly Panel Meetings on Therapeutics for the General Physician	The New York Academy of Medicine Two E 103 St New York 29	G	SCI	Pan	9	11/2/56	4/5/57	I 6 sessions 1½ hr monthly Fridays	Nil
Comprehensive Course in Medicine	New York Polyclinic Medical School and Hospital 345 W 50th St, New York	G	SC	Lab Pt Dem LC WR O Sem Lec AV	1260	9/56	6/57	C 180 days	800
Course for General Practitioners	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Sur Lec AV	192	10/1/56 4/1/57	10/31/56	C 30 days	100
General Medicine	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Lec AV	192	Arranged		C 28 days	100
555-A Electronics for Physicians	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Dem Lec	15	9/4/56	11/13/56	I 10 sessions 1½ hr weekly Tuesdays	75
630-A Tropical Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem Lec	245	Arranged		C Unknown	300
Recent Advances in Diagnostic Procedures	Rochester General Hospital 501 W Main St Rochester N Y	G	SCI	Lab WR Lec O	10	3/7/57	4/4/57	I 5 sessions 2 hr weekly Thursdays	10
Recent Advances in Medicine	Rochester General Hospital 501 W Main St Rochester, N Y	G	SC	Pt Dem LC WR Lec Pan O	6	4/18/57	4/18/57	C 1 day	5
Postgraduate Course in Medicine	State University of New York Upstate Medical Center 766 Irving Ave, Syracuse N Y	G	SCI	Sem Lec O Av	25	10/11/56	11/22/56	I 7 sessions 2 hr weekly, Thursdays	15
Morganton Postgraduate Medical Course	Office of Continuation Education The School of Medicine University of North Carolina Chapel Hill N C course at Grace Hospital Morganton N C	B	SCI	Lec	18	9/19/56	10/31/56	I 6 sessions 3 hr weekly, Wednesdays	20
Asheville Postgraduate Medical Course	Office of Continuation Education The School of Medicine University of North Carolina Chapel Hill N C course at Memorial Mission Hospital Asheville N C	B	SCI	Lec	18	9/20/56	11/1/56	I 6 sessions 3 hr weekly, Thursdays	20
Postgraduate Seminar	Mecklenburg Co Chapter North Carolina Academy of General Practice Charlotte N C course at Hotel Charlotte Charlotte N C	G	BC	Lec O	6	11/4/56	11/4/56	C 1 day	Unknown
Duke Medical Postgraduate Course	Duke University School of Medicine Durham N C	G	BC	Lab Pt Dem LC WR Lec Pan	28	6/17/57	6/20/57	C 4 days	25
Seminar Program of The Southwestern Ohio Society of General Physicians	Southwestern Ohio Society of General Physicians 7017 Miami Madeira Ohio course at University of Cincinnati College of Medicine Cincinnati 19	G	BCI	Lec Pan AV	Unknown	Unknown	Unknown	I 2 sessions 3 hr weekly Thursdays and Sundays	25 for members 10 per day for non members
General Practice	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	G	BC	Pt Dem Sem Lec Pan O AV	10	2/6/57	2/7/57	C 2 days	15
Annual Postgraduate Seminar	Huron Road Hospital 13951 Terrace Rd Cleveland 12	B	BC	Lec Pan O	17	Spring/57	Spring/57	C 2 days	20

1 The Influence of Nutritional Processes on Aging 2 Jaundice	Interstate Postgraduate Medical Association Box 1109 Madison 1 Wis course at Academy of Medicine of Cleveland & Cuyahoga County Cleveland	B	BC	Lec Pan	2	10/22/56	10/22/56	C 1 day	Nil
Postgraduate Hospital Training Course in Medicine Pediatrics and Surgery	Commission on Graduate Education The Medical Society of the State of Pennsylvania 230 State St Harrisburg Pa	G	SCI	Lt Lec Dem LC WR	60	Given 6 times in period from 9/1/56 to 8/31/57		I 10 sessions 6 hr weekly Wednesdays	60
Postgraduate Seminar for the General Practitioner	Commission on Graduate Education The Medical Society of the State of Pennsylvania 230 State St Harrisburg Pa	G	BC	Sem	6	8 one day Postgraduate Seminars to be given 4 during period 9/1/56 to 12/31/56 and 4 during period of 1/1/57 to 4/30/57		C 1 day	6
The Jefferson Graduate Assembly	Jefferson Medical College 1025 Walnut St Philadelphia	G	BC	Lec O	20	2/57	2/57	C 3 days	15
Postgraduate Institute	Philadelphia County Medical Society 310 S 21st St Philadelphia 3 course at Bellevue Stratford Hotel Philadelphia 3	G	BC	Lec Pan O AV	21	3/19/57	3/22/57	C 4 days	10 for non members
Advances in Medicine and Surgery	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SC	Lec Pan AV	30	9/17/56	9/21/56	C 5 days	100 non alumni 15 students 35 alumni
Postgraduate Seminar	Medical College of South Carolina 16 Lucas St Charleston S C	G	BC	Sem Lec Pan AV	25	10/30/56	11/1/56	C 3 days	Nil
Clinical Day	Vanderbilt University Hospital and Medical School 21st Ave S Nashville Tenn	C	BC	Pt Dem Lec O	7	Variable twice a year		C 1 day	Unknown
Management of Mass Casualties	Army Medical Service School Ft Sam Houston Tex course at Brooke Army Medical Center San Antonio Tex	G	SC	Sem Lec Pan O AV	10	10/1/56 11/26/56 2/25/57 4/1/57 6/3/57	10/5/56	C 5 days	Nil
Clinical Seminars	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas course at The University of Texas Postgraduate School of Medicine San Angelo Texas	G	SCI	Pan		9/9/56	1/11/57	I Sundays	Unknown
Treatment of Common Emergencies	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	BC	Lec Pan	8	9/15/56	9/15/56	C 1 day	10
Emergency Procedures	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas course at The University of Texas Postgraduate School of Medicine Texarkana Texas	G	BC	Lec	6	10/11/56	10/11/56	C 1 day	10
Medical Traineeship Arranged in Subject Desired	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	MT			Arranged		Two weeks to one year	Varies according to length of study
The Acute Abdomen	University of Texas Postgraduate School of Medicine San Antonio Tex course at Robert B Green Memorial Hospital San Antonio Tex	G	BCI	Pt Dem Lec Pan	6	9/12/56	9/26/56	I 3 sessions 2 hr weekly Wednesdays	10
Mass Casualties	University of Texas Postgraduate School of Medicine San Antonio Tex course at Robert B Green Memorial Hospital San Antonio Tex	G	SCI	Lec O	4	12/5/56	12/12/56	I 2 sessions 2 hr weekly, Wednesdays	5
Pharmacology of Steroids and Their Use in Clinical Medicine	University of Texas Postgraduate School of Medicine San Antonio Tex course at Robert B Green Memorial Hospital San Antonio Tex	G	SCI	Lt Dem Lec O	8	1/9/57	1/30/57	I 4 sessions 2 hr weekly Wednesdays	10

Key will be found on page 1278

GENERAL PRACTICE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Fifth Postgraduate Conference in Medicine and Surgery	University of Texas Postgraduate School of Medicine Texas Medical Center Houston Tex course at Scott and White Memorial Hospitals Scott, Sherwood Brindley Foundation Temple, Tex	G	BC	Pt Dem LC WR Sur Sem Lec Pan O AV	27	3/ 4/57	3/ 6/57	C, 3 days	15
Postgraduate Medical and Surgical Conference	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston Texas course at Scott and White Clinic Hospitals Temple Texas	G	BO	Lab, Pt Dem, LC, WR, Sur, Lec	27	3/ 4/57	3/ 6/57	C, 3 days	5
May Clinical Meeting	University of Vermont College of Medicine Burlington Vt	G	BO	Lec Pan	5	5/57	5/57	C, 1 day	Nil
Conferences on General Medicine	University of Virginia Medical School Charlottesville Va	G	BC	Pt Dem, Lec Pan, O, AV	6	Fall/56 Spring/57 Winter/57		C, 1 day	Nil
Jackson Clinic—Marquette Postgraduate Clinic	Jackson Clinic 30 S Henry St, Madison Wis	G	BO	Lec, AV	4	9/29/56	9/29/56	C, 1 day	Nil
Circuit Teaching Program	State Medical Society of Wisconsin 704 E Gorham St Madison Wis course at St Agnes Hospital Fond du Lac, Wis Wausau Club Wausau Wis Elks Club Portage Wis	G	CO	Lec	5	9/13/56 9/14/56 9/14/56	9/13/56	1 day	6 including dinner
Circuit Teaching Program	State Medical Society of Wisconsin 704 E Gorham St Madison Wis course at Elks Club Rice Lake Wis Mead Hotel Wisconsin Rapids Wis Elks Club, Appleton Wis	G	CO	Lec	5	10/18/56 10/19/56 10/20/56	10/18/56	1 day	6 including dinner
Circuit Teaching Program	State Medical Society of Wisconsin 704 E Gorham St Madison Wis, course at American Legion Club Richland Center Wis American Legion Club Oconomowoc, Wis Foeste Hotel Sheboygan Wis	G	CO	Lec	5	1/17/57 1/18/57 1/19/57	1/17/57	1 day	Unknown
Circuit Teaching Program	State Medical Society of Wisconsin 704 E Gorham St Madison Wis course at Monterey Hotel Janesville Wis Hardware Mutuals Aud and Hotel Whiting Stevens Point Wis Elks Club, Green Bay Wis	G	CO	Lec	5	2/14/57 2/15/57 2/16/57	2/14/57	1 day	Unknown

GYNECOLOGY

(See also Malignant Disease and Pathology)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Gynecology	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SOI	Lec Pan	10	3/27/57	5/29/57	I, 10 sessions 1 hr weekly, Wednesdays	30
Practical & Didactic Course in Office Gynecology	Cook County Graduate School of Medicine 707 S Wood St, Chicago 12	G	BOI	Lab Pt Dem, LC, Lec, O EPP	16	9/ 5/56 11/ 7/56 1/ 9/57 2/27/57 5/ 1/57	9/26/56	I 10 sessions 4 hr weekly, Wednesdays	100
Vaginal Approach to Pelvic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LC, WR, Sur, Lec, O	20	9/10/56 10/15/56 2/ 4/57 3/ 4/57 4/29/57 6/10/57	9/14/56	C 5 days	125
Course II Gynecology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LC WR, Sur Sem, Lec, O AV	94	9/17/56 10/22/56 2/11/57 3/11/57 4/ 8/57 6/17/57	9/20/56	C, 12 days	150
Three Week Combined Course in Gynecology & Obstetrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LC WR, Sur Lec, Sem O AV	100	10/22/56	11/10/56	C 18 days	225
Gynecology Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SOI	Lab Pt Dem Sur, Lec O	20	11/ 7/56 5/ 1/57	12/ 5/56	I 5 sessions 4 hr weekly Wednesdays	100

Gynecology 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston *course at Massachusetts General Hospital Boston*	G	SC	Lab Pt Dem FO Lec AV	78	9/10/56	9/21/56	C 11 days	150
Gynecology 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Free Hospital for Women Boston	G	SO	Lab Pt Dem FO WR Lec AV	120	Arranged	Arranged	C by arrangement	150 a mo
Office Gynecology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	3/ 7/57	3/ 9/57	C 3 days	20
Gynecology for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BO	Lec O	15	10/22/56	10/24/56	C 3 days	30
Gynecology	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BC	Pt Dem FC WR Sur Sem Lec Pan O AV	11	11/28/56	11/29/56	C 2 days	30
Clinical and Operative (Cadaver) Gynecology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem FC WR Cad Sur Sem Lec AV FPP	960	10/ 1/56 4/ 1/57	11/12/56	C 30 days	175
Clinical Gynecology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem FC Sem Lec	210	10/ 1/56 4/ 1/57	11/12/56	C 30 days	75
Gynecology	New York University Post Graduate Medical School 550 First Ave New York 16 course at Beth Israel Hospital New York 3	S	SC	Lab Pt Dem FC WR Sur Sem Lec Pan O AV	390	9/ 5/56	12/10/56	C 60 days	250
480-A Diagnosis and Therapy of Malignant Neoplasms of the Female Genital Tract	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Pt Dem FC Cad	35	10/ 1/56	10/ 5/56	C 5 days	150
488-A Gynecological Cytology (For Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab Lec	32	10/ 2/56	11/29/56	I 16 sessions 1 hr Tuesdays 1 hr Thursdays	100
487-A Gynecology and Endocrinology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pat Dem FC Lec	35	10/ 8/56 1/ 8/57	10/12/56	C 5 days	125
481-A Culdoscopy	New York University Post Graduate Medical School 550 First Ave New York	G	BCI	Pt Dem Lec	6	11/26/56 1/28/57 1/30/57	11/30/56	I 3 sessions 2 hr Monday Wednesday Friday	50
481-A Diagnosis and Therapy of Malignant Neoplasms of the Female Genital Tract	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Lab Pt Dem FC Cad	16	2/ 4/57	2/21/57	I 6 sessions 6 hrs twice weekly Mondays Thursdays	100
Postgraduate Course in Gynecology for General Practitioners	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	G	SC	Pt Dem FC Pan	18	1/29/57	1/30/57	C 2 days	25

HEMATOLOGY

Recent Advances in Hematology	City of Hope Medical Center 1500 E Duarte Rd Duarte Calif	G	BC	Pt Dem Lec Pan O	11	2/ 4/57	2/ 5/57	C 2 days	25
Clinical Hematology	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	B	SC	Lab AV	18	7/57	7/57	C 6 days	75
Hematology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem FC WR Lec O	30	6/17/57	6/21/57	C 5 days	100
Hematology and Steroid Hormone Conference	State University of Iowa Iowa City	B	BC	Pt Dem Lec Pan O AV	6	3/27/57	3/27/57	C 1 day	10
Hematology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Kan	B	BC	Lab Sem Lec Pan O AV	21	3/25/57	3/27/57	C 3 days	35
Hematology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	4/ 4/57	4/ 6/57	C 3 days	20
Hematology	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Lec Pan O AV	9	2/ 8/57	2/ 9/57	C 2 days	15
Medicine (PM 63)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Lab Pt Dem WR Lec AV	54	9/11/56 1/29/57	1/22/57	I 18 sessions 3 hr weekly, Tuesdays	75
Medicine (PM 65)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	Lab Pt Dem WR Lec	30	9/18/56 2/ 5/57	1/ 8/57	I 15 sessions 2 hr weekly Tuesdays	75

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HEMATOLOGY Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Hematology (PM 31)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SCI	Lab Pt Dem Lec	24	10/30/56	12/18/56	I 8 sessions 3 hr weekly, Tuesdays	50
Laboratory Methods in Hematology (PM 30)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SC	Lab FPP	64	2/25/57	3/21/57	C 16 days	200
Blood Transfusions (d)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem WR Sem Lec AV	90	Arranged		C 10 days	100
419-A Hematology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lec	35	11/12/56	11/16/56	C 5 days	85
420-A Clinical Hematology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	18¼	4/9/57	5/28/57	I 15 sessions 1 hr Tuesdays 1¼ hr Thursdays	45
Pathologic Physiology of the Blood Dyscrasias	American College of Physicians 4200 Pine St Philadelphia course at Washington University School of Medicine St Louis 10	S	SC	Lab Lec Pan	40	2/18/57	2/22/57	C 5 days	30 Members 60 Non members
Hematology and Blood Bank	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SC	Lab Lec Pan	60	11/1/56	11/14/56	C 10 days	200
Blood Group Incompatibilities and Erythroblastosis Fetalis	Graduate School of Medicine University of Pennsylvania Philadelphia course at The Children's Hospital Philadelphia	G	BC	Lab Sem Lec Pan O	14	6/57	6/57	C 2 days	50
Practical Pediatric Hematology	Graduate School of Medicine University of Pennsylvania Philadelphia	B	BC	Lec Lab Pan	18	6/57	6/57	C 3 days	60

INTERNAL MEDICINE

(See also Cardiovascular Disease, Endocrinology, Electrocardiography and Peripheral Vascular Disease)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
The Use of Isotopes in Medicine	City of Hope Medical Center 1500 E Duarte Rd Duarte Calif	G	BC	Pt Dem Lec Pan O	14	1/21/57	1/22/57	C 2 days	25
855—Intensive Review of Internal Medicine	University of Southern California School of Medicine Medical Research Bldg 2025 Zonal Ave Los Angeles 33	S	SC	Lec AV	40	9/24/56	10/5/56	C 10 days	65
852—Bedside Clinics and Panel Discussion on Therapy in Internal Medicine	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33 course at Los Angeles County Hospital	S	SCI	Pt Dem IC WR Pan	24	10/18/56	1/24/57	I 12 sessions 2 hr weekly Thursdays	65
847—Live Clinic in Diseases of the Liver and Billiary Tract	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33 course at Los Angeles County Hospital	S	BC	Pt Dem IC Lec Pan	23	Spring/57	Spring/57	C 3 days	65
Dynamics of Metabolic Disease	Highland Alameda County Hospital 2701—14th Ave Oakland 6 Calif	G	BC	Lab Pt Dem Lec Pan O AV	32	2/11/57	2/14/57	C 4 days	75
A Series of Postgraduate Medical Programs	U S Veterans Administration Hospital (Fort Miley) 42nd Ave at Clement St San Francisco	G	SCI	Lab Pt Dem IC Lec Pan	12	4/24/57	5/29/57	I 6 sessions 2 hr weekly Tuesdays	10 for A A G P Members 20 for non members
Fundamentals of Fluid and Electrolyte Metabolism	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	G	SCI	Lec	24	10/56	12/56	I 12 sessions 2 hr weekly	10
Present Concepts in Internal Medicine	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Letterman Army Hospital San Francisco	G	SC	IC Lec	40	10/29/56	11/2/56	C 5 days	Nil
26th Venereal Disease Conference	Dept of Health Education and Welfare U S Public Health Service Washington 25 D C course at a University School of Medicine (undetermined)	G	SC	Sem Lec Pan O AV	30	unknown		C 5 days	Nil
Seminar on Diabetes Mellitus	Division of Post Graduate Education College of Medicine University of Florida Gainesville Fla course at Roosevelt Hotel Jacksonville Fla	B	BC	Sem Lec Pan AV	12	10/19/56	10/20/56	C 2 days	10
Professor Pro Tempore Medicine	Mt Sinai Hospital of Greater Miami 4300 Alton Rd Miami Beach Fla	S	SC	Lab Pt Dem LC WR Sem Lec Pan O AV	44	9/17/56	9/22/56	C 6 days	Nil

General Medicine	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem IC WR Lec O FPP	20	9/19/56 3/20/57	11/21/56	I 10 sessions 2 hr weekly Wednesdays	100
Arthritis and Allied Rheumatic Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem IC Lec O	20	9/21/56 3/22/57	11/23/56	I 10 sessions 2 hr weekly Fridays	100
Course II Internal Medicine	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem IC WR Sem Lec O	80	9/24/56 5/6/57	10/6/56	C 12 days	125
Differential Diagnosis	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Pt Dem IC Lec O	20	3/20/57	5/22/57	I 10 sessions 2 hr weekly Wednesdays	100
Liver and Biliary Tract Diseases	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem IC WR Sem Lec O AV	30	6/24/57	6/29/57	C 5 days	100
Postgraduate Course on Thyroid Diseases	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec Pan O AV	7	10/10/56	10/10/56	C 1 day	10
Internal Medicine	University of Kansas Medical Center 39th & Rainbow Blvd Kansas City Kan	B	BC	Pt Dem IC WR Lec Pan AV	28	11/12/56	11/15/56	C 4 days	50
Spring Postgraduate Seminars in Medicine	University of Louisville Medical Center 101 W Chestnut St Louisville Ky	G	BCI	Lec O AV	11	4/4/56	4/25/56	I 4 sessions 3½ hr weekly Thursdays	20
Topics in Clinical Medicine	The Johns Hopkins Hospital 601 N Broadway Baltimore	B	SC	Pt Dem IC WR Lec Pan O	10	5/13/57	5/18/57	C 5½ days	100
Internal Medicine 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital	G	SC	Lab Pt Dem IC WR Lec O	Unknown	9/1/56	8/31/57	C 1 yr	800
Internal Medicine 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital	G	SC	Lab Pt Dem IC WR Lec O	Unknown	9/4/56 6/3/57	11/30/56	C 70 days	100
Internal Medicine 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SC	Pt Dem Lec Pan O	180	6/17/57	7/27/57	C 30 days	250
Thyroid Disease and the Use of Radioactive Iodine	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital and Beth Israel Hospital Boston	S	SC	Lab Pt Dem WR Lec	110	2/4/57 7/1/57	3/1/57	C 20 days	300
Diabetes and Endocrinology In Relation to General Medicine	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at New England Deaconess Hospital Boston	G	BC	IC Dem Lec	21	7/1/57	7/3/57	C 3 days	30
Review of Recent Advances in Internal Medicine	Tufts University School of Medicine Post Graduate Division 171 Harrison Ave Boston	G	SC	Pt Dem Lec Pan AV	25	10/1/56	10/5/56	C 5 days	50
Rheumatic Diseases	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	11/1/56	11/3/56	C 3 days	20
Diabetes	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	2/7/57	2/9/57	C 3 days	20
Clinical Internal Medicine	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SCI	Pt Dem Sem Lec O AV	100	10/4/56	4/18/57	I 25 sessions 1 hr weekly Thursdays	65
Metabolism and Endocrinology	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec O	30	4/1/57	4/5/57	C 5 days	50
Rheumatology	University of Michigan Medical School Dept of Post graduate Medicine University Hospital Ann Arbor Mich	G	BC	Pt Dem IC Lec Pan O AV	18	4/22/57	4/24/57	C 3 days	50
Recent Advances in Therapeutics	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SC	Pt Dem Lec, Pan O AV	30	4/29/57	5/3/57	C 5 days	50
Internal Medicine for Internists	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis	S	BC	Lec O	15	3/18/57	3/20/57	C, 3 days	30
Dr A Morris Ginsberg Memorial Clinical Seminar	Menorah Medical Center 4949 Rockhill Rd Kansas City Mo	G	BC	Pt Dem IC WR Sem Lec Pan O FPP	18	Fall/56	Fall/56	C, 3 days	Nil
Arthritis Symposium	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Lec Pan O AV	6	2/7/57	2/7/57	C 1 day	10
Renal Diseases	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Lec Pan O AV	9	3/8/57	3/9/57	C 2 days	15

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INTERNAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Internal Medicine	St Michael's Hospital 306 High St Newark N J	G	SCI	Pt Dem, Lec, Pan O AV	20	10/10/56	2/27/57	I 10 sessions 2 hr twice monthly, Wednesdays	25
Evaluation of the Newer Drugs	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BC	Pt Dem LC Sem Lec, Pan, O AV	14	10/ 3/56	10/ 4/56	C 2 days	30
Fluid and Electrolyte Therapy	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BC	Pt Dem LC, Sem Lec Pan, O, AV	7	10/18/56	10/18/56	C, 1 day	15
Internal Medicine	Community Hospital at Glen Cove Walnut Ave Glen Cove N Y	G	SCI	Sem Lec O	20	9/23/56	11/25/56	I 10 sessions 2 hr weekly, Sundays	50
Arthritis (PM 81)	Hospital for Joint Diseases 1919 Madison Ave New York 35	G	SCI	LC Lec	30	3/ 6/57	5/ 8/57	I 10 sessions 3 hr weekly Wednesdays	100
Recent Advances in Internal Medicine	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Kings County Hospital Brooklyn N Y	G	SCI	Lec	15	10/56	12/56	I 10 sessions 1½ hr weekly Wednesdays	30
Medicine (PM 74)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	WR Sem	68	9/25/56 2/ 5/57	1/29/57	I 17 sessions 4 hr weekly Tuesdays	150
Arthritis	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC WR Sem Lec, O AV	8	Arranged		I 8 sessions 1½ hr weekly Tuesdays	50
5435-A Clinical Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York 16	G	SCI	LC WR	Unknown	9/ 6/56 1/ 3/57 3/ 7/57	3 6 or 9 mo	I 4 hr weekly, Thursdays	60 for 3 mo
5437 A Normal and Pathological Physiology Functional and Chemical Aspects	New York University Post Graduate Medical School 550 First Ave New York 16	G	SC	Lec	70	9/17/56	9/28/56	C 10 days	125
460-A Biochemistry and Physiology in Disease Laboratory Diagnosis	New York University Post Graduate Medical School 550 First Ave New York 16	G	SCI	Lec	16	10/ 2/56	11/27/56	I 8 sessions 2 hr weekly Tuesdays	Unknown
5413-A Auscultation of the Heart	New York University Post Graduate Medical School 550 First Ave New York 16	G	BC	Pt Dem Lec	21	10/29/56 2/25/57	10/31/56	C, 3 days	55
5433 A Problems in Clinical Medicine	New York University Post Graduate Medical School 550 First Ave New York 16	G	SCI	Pt Dem LC WR AV EPP	75	11/ 2/56	4/26/57	I, 25 sessions 3 hr weekly, Fridays	75
5424 A Diabetes Mellitus Hyperinsulinism and Hypoglycemia	New York University Post Graduate Medical School 550 First Ave New York 16	G	BC	Lec	21	11/12/56	11/14/56	C, 3 days	40
5443-A Arthritis and Allied Rheumatic Disorders	New York University Post Graduate Medical School 550 First Ave, New York	G	SC	LC Lec	35	11/12/56	11/16/56	C, 5 days	85
5439-A Recent Advances in the Diagnosis and Treatment of Poisonings	New York University Post Graduate Medical School 550 First Ave New York	C	BC	Lab Lec	21	12/ 3/56	12/ 5/56	C 3 days	60
544 A Arthritis and Related Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	35	2/12/57	3/26/57	I 5 sessions 7 hr weekly, Tuesdays	85
5429-A Treatment of Renal Failure and Hypertension	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec	24	4/ 8/57	5/27/57	I 8 sessions 3 hr weekly Mondays	35
5441 A Seminar in Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Sem Lec	280	4/ 8/57	5/31/57	C 40 days	250
5442 A Arthritis and Allied Rheumatic Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	24	4/ 9/57	5/28/57	I 8 sessions 3 hr weekly Tuesdays	55
5428 A Diseases of the Liver and Biliary Tract	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/10/57	5/29/57	I 8 sessions 2 hr weekly Wednesdays	40
5438-A Normal and Pathological Physiology Functional and Chemical Aspects	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/10/57	5/29/57	I 8 sessions 2 hr weekly Wednesdays	50
5421 A Problems in Diagnosis	New York University Post-Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem LC Lec	12	4/12/57	5/31/57	I 7 sessions 1¾ hr weekly Fridays	35

432 A Symposium on Modern Therapeutics in Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem Lec	70	6/10/57	6/21/57	C 10 days	100
430-A The Management of Chronic Kidney Disease	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Lec	11	6/24/57	6/25/57	C 2 days	35
431 A The Management of Hypertension	New York University Post Graduate Medical School 550 First Ave New York	G	BC	Lec	11	6/26/57	6/27/57	C 2 days	35
430-A Tutorial Course in Internal Medicine	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Lab Pt Dem LC WR Lec	Unknown	Arranged		C minimum 1 mo	125 a mo
Progress in Management of Rheumatic Disease	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	G	BC	Pt Dem Sem Lec Pan O AV	10	10/24/56	10/25/56	C 2 days	15
Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at University of Washington School of Medicine Seattle 5	S	SC	Lec Pan	40	10/22/56	10/26/56	C 5 days	30 Members 60 Non members
Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at Emory University School of Medicine Atlanta Ga	S	SC	Lec Pan	40	3/18/57	3/22/57	C 5 days	30 Members 60 Non members
Pathology and Pathologic Physiology in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at Cleveland Clinic Cleveland	S	SC	Lec Pan	40	3/25/57	3/29/57	C 5 days	30 Members 60 Non members
Diabetes and Basic Metabolic Problems	American Diabetes Association Inc 1 East 45th St New York 17 course at College of Medicine Ohio State University Columbus Ohio	G	BC	Pt Dem Sem Lec Pan O	20	1/30/57	2/1/57	C 3 days	40 Members 75 Non members
Rheumatology	University of Oregon Medical School 3181 S W Sam Jackson Park Rd Portland	G	BC	Pt Dem LC WR Lec Pan O	21	10/29/56	10/31/56	C 3 days	30
Latest Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at Vanderbilt University School of Medicine Nashville 5 Tenn	S	SC	Lec Pan	40	10/15/56	10/19/56	C 5 days	30 A C P Members 60 Non members
Recent Advances in Internal Medicine	American College of Physicians 4200 Pine St Philadelphia 4 course at University of Oklahoma School of Medicine Oklahoma City	S	SC	Lec Pan	40	Autumn/56	Autumn/56	C 5 days	30 Members 60 Non members
Applied Aspects of Calcium and Phosphorus Metabolism	Graduate School of Medicine University of Pennsylvania Philadelphia	G	BC	Lec Pan	10	3/11/57	3/14/57	C 4 days	40
Ionic (Acid Base) Balance and Water Balance with Clinical Applications	Graduate School of Medicine University of Pennsylvania Philadelphia	G	BC	Sem Lec Pan		5/22/57	5/24/57	C 3 days	60
Modern Viewpoints in Carbohydrate and Fat Metabolism with Clinical Applications	Graduate School of Medicine University of Pennsylvania Philadelphia	B	BC	Lec Pan	12	6/3/57	6/4/57	C 2 days	40
The Arthritides	The University of Texas Post Graduate School of Medicine Texas Medical Center Houston 25 Texas	G	BC	Lec	Unknown	1/57	1/57	C 2½ days	30
Cardio Pulmonary Function Studies and Clinical Applications	University of Vermont and Mary Fletcher Hospital Mary Fletcher Hospital Burlington Vt	S	SC	Lab Pt Dem LC WR Sem Lec Pan O	10	11/5/56	11/10/56	C 6 days	Unknown
Fluid and Electrolyte Balance	University of Washington School of Medicine Seattle 5	G	BC	Lab Pt Dem Sem Lec O EPP	21	9/12/56	9/15/56	C 4 days	45

MALIGNANT DISEASE
(See also Gynecology)

Recent Advances in the Management of Cancer	City of Hope Medical Center 1500 E Duarte Rd Duarte Calif	G	BC	Pt Dem Lec Pan O	21	11/12/56	11/14/56	C 3 days	25
Southeastern States Cancer Seminar	State Board of Health Cancer Division P O Box 210 Jacksonville Fla	G	BC	Sem Pan O AV	11	11/5/56	11/6/56	C 2 days	Nil
Physician's Postgraduate Course in Cancer Cytology	Cancer Institute at Miami 1155 N W 11th St Miami Fla	S	MI	Unknown	12 mo	continuous		12 mo	150 first mo 175 second mo 50 third mo 25 each for following mo 450 one year
Cancer Teaching Clinic	Westfield State Sanatorium Westfield Mass	G	SC	Pt Dem LC Lec, Pan O AV	8	11/56 5/57	11/56	C 1 day	Nil

Key will be found on page 1278

MALIGNANT DISEASE - Continued

Title of Course	Location	Designed For	Type	Instruction Methods of	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Cancer Symposium	State University of Iowa Iowa City	B	BC	Pt Dem Lec Pan O AV	10	12/ 7/56	12/ 9/56	C 1½ days	15
Institute on Cancer of the Head and Neck	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Pt Dem Lec O AV	12	11/28/56	11/29/56	C 2 days	20
The Diagnosis and Management of Early Cancer	Memorial Center for Cancer and Allied Diseases 444 E 68th St New York	G	BC	Pt Dem LC Sem Lec O AV FPP	20	4/18/57	4/20/57	C 3 days	40
Medicine (PM 72)	Montefiore Hospital 210th St and Bainbridge Ave New York	G	SCI	WR Sem Lec	72	9/11/56 1/29/57	1/22/57	I 18 sessions 1 hr weekly Tuesdays	150
662 A Basic Problems in Cancer Therapy	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Pt Dem LC Sem Lec Pan, O AV	88	1/21/57	2/ 2/57	C 12 days	200
Diagnosis and Treatment of Malignant Neoplasms	University of Oregon Medical School 3181 S W Sam Jackson Rd Portland	G	SC	Pt Dem LC Lec Pan O AV	35	9/10/56	9/14/56	C 5 days	25
Clinical Symposium on Management of Carcinoma of Breast	The University of Texas Post Graduate School of Medicine Houston Tex course at M D Anderson Hospital and Tumor Institute Houston 25 Tex	G	BC	Pt Dem Lec	10	11/ 2/56	11/ 3/56	C 2 days	Unknown
M D Anderson Hospital and Tumor Institute Annual Cancer Symposium	University of Texas Post Graduate School of Medicine Houston 25 Tex course at M D Anderson Hospital and Tumor Institute Houston 25 Tex	B	BC	Lec	20	3/ 7/57	3/ 9/57	C 3 days	Unknown

NEUROLOGY
(See also Anatomy)

Title of Course	Location	Designed For	Type	Instruction Methods of	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Neuroroentgenology	Program Director 10th Conn Post Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine 333 Cedar St New Haven Conn	S	BCI	Lab Lec O, AV	8	9/24/56	10/15/56	I 4 sessions 2 hr weekly, Mondays	Nil
Neuropathology	Program Director 10th Conn Post Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lab Lec, O AV	20	9/26/56	11/14/56	I 8 sessions 2½ hr weekly, Wednesdays	Nil
Clinical Neurology	Program Director 10th Conn Post Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lec O AV	39	9/24/56	12/ 3/56	I 13 sessions 2½ hr weekly, Mondays	Nil
Pediatric Neurology	Program Director 10th Conn Post Graduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine 333 Cedar St New Haven Conn	S	BCI	Lec O AV	12	4/22/57	5/ 6/57	I 8 sessions 1½ hr weekly, Monday	Nil
Neurology Postgraduate Course	State University of Iowa Medical School Iowa City	B	BO	Pt Dem Lec, Pan O AV	6	4/57	4/57	O 1 day	10
Neurology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	BO	Pt Dem Sem Lec Pan O AV	14	2/27/57	2/28/57	O 2 days	30
Neurological Medicine	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Boston City Hospital	S	SO	Pt Dem LC Lec O	38	Unknown	Unknown	O, 5 days	150
Neurology	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BO	Pt Dem Lec Pan AV	21	5/22/57	5/25/57	C 4 days	20
Postgraduate Seminar in Neurology and Psychiatry	Metropolitan State Hospital 475 Trapelo Road Waltham Mass	S	SCI	Lab Lec	46	10/ 5/56	12/ 7/56	I 17 sessions 3 hr twice weekly Fridays, Saturdays	Nil
Neurology for General Physicians and Surgeons	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14 Minn	G	SO	Lec O	33	2/11/57	2/16/57	C 6 days	50
Cerebral Palsy (PM1)	Columbia Presbyterian Medical Center 630 W 168th St New York	G	SO	LC Lec Pan	105	10/15/56 3/ 4/57	11/ 2/56	C 15 days	100

Neurology (PM 60)	Montefiore Hospital 210th St & Bainbridge Ave New York 67	G	SCI	Lab WR Lec	108	11/ 5/56	12/ 1/56	I 36 sessions 3 hr 4 times weekly Mondays Wednesdays Fridays Sundays	150
Neurology (PM 30)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SC	TC Sem Lec	30	4/ 1/57	4/ 5/57	O 5 days	75
611 A Neuroanatomy and Neurophysiology	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lab Lec	120	9/17/56	12/ 7/56	I 38 sessions 3½ hr 3 times weekly Mondays Wednesdays Fridays	250
Clinical Neurology	American College of Physicians 4200 Pine St Philadelphia 2 course at Jefferson Medical College of Philadelphia Philadelphia 4	S	SC	Lec Pan	40	10/15/56	10/19/56	O 5 days	30 for A C P Members 60 for Non Members
Pain Syndromes Diagnosis and Treatment by Regional Block	University of Pennsylvania Graduate School of Medicine Philadelphia	G	SO	Pt Dem O	Unknown	10/ 1/56 11/ 1/56 12/ 1/56 1/ 1/57 2/ 1/57 3/ 1/57 4/ 1/57 5/ 1/57	10/10/56	O 15 days	200
Neurological Examination Diagnosis and Treatment of Common Neurological and Neurosurgical Disorders	University of Texas Post Graduate School of Medicine San Antonio Tex course at Robert B Green Memorial Hospital San Antonio Tex	G	SCI	Pt Dem Lec O	10	10/ 3/56	10/31/56	I 5 sessions 2 hr weekly Wednesdays	10
The Brain Damaged Child	The University of Texas Post Graduate School of Medicine Texas Medical Center Houston 25 Texas	G	BO	Lec		2/57	2/57	O 3 days	Unknown
Neurology	University of Washington School of Medicine Seattle 5	B	BC	Pt Dem TC Sem Lec Pan O	21	5/57	5/57	O 2½ days	60
				NEUROLOGY & PSYCHIATRY					
Postgraduate Seminar in Neurology and Psychiatry	Metropolitan State Hospital 475 Trapelo Road Waltham Mass	S	SCI	Lec	27	3/ 1/57	4/20/57	I 8 sessions 3 hr weekly, Fridays	Nil
Psychiatry (PM 1)	Columbia Presbyterian Medical Center 630 W 168th St New York 32	S	SC	Lab Lec	350	10/ 1/56	12/ 7/56	O 50 days	300
617 A Psychiatry & Neurology	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem TC Lec	420	9/17/56	12/ 7/56	O 12 weeks	300
Clinicobiologic Neurology and Psychiatry	Graduate School of Medicine University of Pennsylvania Philadelphia	B	SC	Lab Pt Dem Lec Pan	120	9/21/57	12/17/57	O 60 days	300
Institute on Neurology & Psychiatry	Medical College of South Carolina 16 Lucas St Charleston S C	G	BO	Lec	6	4/ 5/57	4/ 5/57	O 1 day	Nil
				OBSTETRICS					
Management of Infertility	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan	12	1/17/57	3/ 7/57	I 8 sessions 1½ hr weekly, Thursdays	30
1st State Obstetric Seminar	Florida State Board of Health— Bureau of Maternal and Child Health P O Box 210 Jacksonville 1 Fla course at Daytona Plaza Hotel Daytona Beach Fla	O	BC	Sem Lec Pan O AV	15	9/10/56	9/12/56	O 3 days	Nil
General & Surgical Obstetrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem TC, WR Sur Lec O	50	9/10/56 3/20/57	11/21/56	I 10 sessions 6 hr weekly Wednesdays	150
Course I Obstetrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem TC WR Sur Sem Lec O AV	75	10/ 1/56 11/ 5/56 2/ 5/57 4/25/57 5/ 6/57	10/13/56	O 12 days	150

Key will be found on page 1278

OCCUPATIONAL MEDICINE—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Third Annual Postgraduate Course in Aviation Medicine	Ohio State University College of Medicine Columbus Ohio	G	SC	Sem Lec Pan, O	40	9/10/56	9/15/56	C, 5 days	75
Industrial Medicine	Graduate School of Public Health University of Pittsburgh Terrace and Darragh Sts Pittsburgh	S	SCI	Lec	20	11/19/56	1/30/57	I 20 sessions 1 hr weekly, day to be determined	20

OPHTHALMOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Basic Course in Ophthalmology	University of California School of Medicine Los Angeles 24	S	SCI	Lec AV	50	10/17/56	5/22/57	I 25 sessions 2 hr weekly, Wednesdays	125
Ophthalmological Conference on Glaucoma	University of California Medical Center Second and Parnassus Aves San Francisco	S	BC	Pt Dem Sem Lec	17	9/20/56	9/22/56	C, 3 days	60
Ophthalmology	University of California Medical Center Second and Parnassus San Francisco	G	BC	Lec	21	12/ 5/56	12/ 7/56	C 3 days	60
Postgraduate Seminar in Ophthalmology	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	B	BC	Lec Pan	32	7/57	7/57	C 4 days	50
Postgraduate Series in Ophthalmology	Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lec	8	11/16/56	3/29/57	I 8 sessions 1 hr weekly, Fridays	15
Postgraduate Course in Ophthalmology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	B	BC	Sem Lec Pan O	24	3/18/57	3/20/57	C 3 days	Nil
Clinical Ophthalmology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sur O	50	Arranged		C 12 days	50
Diagnosis and Treatment of Strabismus (Course I)	Northwestern University Medical School 303 E Chicago Ave Chicago 11	S	SC	LC, Lec	24	9/17/56	9/28/56	C, 10 days	100
Diagnosis and Treatment of Strabismus (Course II)	Northwestern University Medical School 303 E Chicago Ave Chicago 11	S	SCI	LC Lec	200	Arranged		I 100 sessions 2 hr weekly by arrangement	150
Ocular Pathology	Tulane University School of Medicine 1430 Tulane Ave, New Orleans	S	SC	Lab WR Lec	40	12/ 3/56	12/ 8/56	C 5 days	100
Ophthalmology	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	S	BC	Lec O AV	18	4/22/57	4/24/57	C 3 days	50
Ophthalmology for Specialists	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Lec O	15	6/17/57	6/19/57	C, 3 days	30
Home Study Course in Ophthalmology	American Academy of Ophthalmology and Otolaryngology 100 First Ave Building Rochester Minn	S	HS(C)	Reading		9/ 1/56	6/30/57	10 mo	20
Glaucoma with Special Emphasis on Technique of Gonioscopy	Brooklyn Eye and Ear Hospital 29 Green Ave Brooklyn N Y	S	BC	Pt Dem Lec O AV, EPP	15	11/19/56 5/20/57	11/21/56	C 3 days	50
Combined Course in Ophthalmoscopy and External Eye Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Jewish Chronic Disease Hospital Brooklyn, N Y	G	SCI	Lec	16	4/57	6/57	I, 8 sessions 2 hr weekly, Fridays	30
Ophthalmology (PM 62)	Montefiore Hospital 210th St & Bainbridge Ave New York 67	G	SCI	LC WR Lec	16	10/15/56	12/ 3/56	I, 8 sessions 2 hr weekly, Mondays	30
Elementary Ophthalmoscopy (PM 60)	Montefiore Hospital 210th St & Bainbridge Ave New York 67	G	SCI	LC Lec	18	1/ 9/57	3/ 5/57	I 9 sessions 2 hr weekly, Wednesdays	30
Ophthalmology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Cad Sur Sem Lec AV EPP	360	10/ 1/56 4/ 1/57	12/31/56	C 72 days	300
Refraction	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem LC Sem Lec AV	72	10/ 1/56 4/ 1/57	10/31/56	C 24 days	100
Operative Ophthalmology (Dissection)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Cad Sur AV EPP	12	10/ 1/56	12/31/56	I 6 sessions 2 hr weekly Wednesdays	100
Motor Anomalies	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lab LC Lec AV	8	Arranged		I 8 sessions 1 hr weekly Mondays	50

Physiologic Optics (Advanced)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC WR Lec AV	30	Arranged		I 15 sessions 2 hr 3 times a week, Mondays Wednesdays, Fridays	100
78-A Ocular Expressions of Systemic Disease	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lec	15	9/17/56	9/21/56	C 5 days	55
611-A Histopathology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Lec	15	9/17/56	9/21/56	C 5 days	100
711-A Ophthalmoscopy	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec AV	15	9/24/56	9/28/56	C 5 days	55
571-A Surgery of the Eye	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Cad Lec	42	10/29/56 3/25/57	11/3/56	C 6 days	125
[illegible]-A Differential Diagnosis with the Slit Lamp (For Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	20	11/2/56	11/6/56	C 5 days	85
608-A Neuro Ophthalmology	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lec	15	1/14/57	1/18/57	C 5 days	55
671-A Motor Anomalies of the Eye (Part I) (For Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	12	3/4/57	3/9/57	C 6 days	100
672-A Motor Anomalies of the Eye (Part II) (For Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem LC Lec	15	3/11/57	3/15/57	C 5 days	85
673-A Ophthalmic Plastic Surgery (For Specialists)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	15	4/1/57	4/5/57	C 5 days	85
Review Course in Ophthalmology	State University of N Y Upstate Medical Center 766 Irving Avenue course at Hotel Syracuse Syracuse	S	BC	Lec Pan AV	15	12/7/56	12/8/56	C 2 days	25
Graduate Seminars in Ophthalmology	University Hospitals Cleveland 6 course at Western Reserve University School of Medicine Cleveland 6	S	SCI	Lec AV	120	9/56	6/57	I 30 sessions 1 hr weekly Tuesdays	NR
Ophthalmology Conference	Ohio State University Columbus Ohio	S	BC	LC Sem Lec AV	16	3/4/57	3/5/57	C 2 days	20
Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	Post Graduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology 603 Mayer Bldg Portland 5 Oregon course at University of Oregon Medical School Portland Oregon	S	BC	Pt Dem Lec Pan O AV	12	3/27/57	3/28/57	C, 2 days	60
Applied Refraction	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	SCI	Lec	6	2/57	3/57	I 5 sessions 1 hr weekly, Mondays	Unknown
Ophthalmological Problems in General Practice	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	BCI	Lec AV	8	3/57		I 4 sessions 3 hr weekly, Tuesdays	15

OPHTHALMOLOGY AND OTOLARYNGOLOGY

Midwinter Seminar on Ophthalmology and Otolaryngology	Division of Postgraduate Education College of Medicine University of Florida course at hotel to be announced	S	SC	Lec O AV	32	1/57	1/57	C 5½ days	40
Ophthalmology and Otolaryngology	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	SC	Pt Dem Lec Pan O AV	35	4/8/57	4/12/57	C 5 days	60
Otolaryngology & Ophthalmology Including Cadaver ENT	New York Polyclinic Medical School & Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Cad Sur Sem Lec AV EPP	180	10/1/56 4/1/57	12/21/56	C 72 days	600
Gill Memorial Eye Ear and Throat Hospital Annual Spring Congress	Gill Memorial EENT Hospital 711 S Jefferson St Roanoke Va	S	SC	Lab Pt Dem WR Sur Lec Pan O, AV	60	4/1/57	4/6/57	C 6 days	75 for whole week 40 for first or second half only

Key will be found on page 1278

ORTHOPEDIC SURGERY
(See also Anatomy)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Diseases and Injuries of Bones and Joints	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SC	Lec	120	7/ 1/57	7/26/57	C 6 hr daily for 20 days	100
-2—Orthopedics in General Practice with Emphasis on Traumatic Conditions	University of Southern California School of Medicine Postgraduate Division 2025 Zonal Ave Los Angeles 33 course at Los Angeles County Hospital	G	BC	Pt Dem Lec Pan O AV FPP	23	Spring/57	Spring/57	C 3 days	65
Pediatric Orthopedics	Tulane University School of Medicine 1430 Tulane Ave New Orleans	S	SC	WR Sem Lec	40	2/ 4/57	2/ 9/57	C 5 days	50
Orthopedic Surgery	American College of Surgeons (Postgraduate Courses) 40 E Erie St Chicago 1 Clinical Congress at San Francisco	S	BC	Sem Lec Pan O AV	12	10/ 8/56	10/11/56	C 4 days	5
Orthopedic Surgery, 1 and 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Children's Hospital Boston	S	SC	Lab Pt Dem LC WR Sur Lec	Variable	Arranged	Arranged	C by arrangement	800 for 12 mo
Orthopedic Surgery	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	14	2/14/57	2/16/57	C 3 days	Unknown
Foot Disabilities (PM 81)	Hospital for Joint Diseases 1919 Madison Ave New York 35	G	SCI	Pt Dem LC Lec	18	1/ 3/57	2/28/57	I 9 sessions 2 hr weekly Thursdays	100
Orthopedic Surgery (PM 80)	Hospital for Joint Diseases 1919 Madison Ave New York 35	G	SCI	Pt Dem LC Lec	66	3/ 7/57	5/16/57	I 11 sessions 6 hr weekly, Thursdays	100
Orthopedic Surgery for General Surgeons	New York Polyclinic Medical School & Hospital 345 W 50th St New York	G	SCI	LC WR Cad Sur, Lec AV	40	Arranged		I 20 sessions 2¼ hr 3 times a week Tuesdays Thursdays, Fridays	100
Operative Orthopedics (Dissection)	New York Polyclinic Medical School & Hospital 345 W 50th St New York	G	SCI	Sur Cad Lec FPP	10	Arranged		I 10 sessions 1 hr weekly, Thursdays	100
Advanced Orthopedics of the Foot	New York Polyclinic Medical School & Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC WR Sur Lec AV	8	Arranged		I 8 sessions 1 hr weekly Saturdays	100
584-A Orthopedics for the General Practitioner	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	LC WR Sem	16	10/ 9/56	12/ 4/56	I 8 sessions 2 hr weekly Tuesdays	45
586-A Orthopedic Aspects of the Treatment of Rheumatic Disorders	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem LC WR	20	10/10/56	12/12/56	I 10 sessions 2 hr weekly Wednesdays	50
585-A Orthopedic Aspects of the Treatment of Rheumatic Disorders	New York University Post-Graduate Medical School 550 First Ave New York	G	BCI	Pt Dem LC WR	21	3/19/57	4/ 2/57	I 3 sessions 7 hr weekly Tuesdays	50
582 A Orthopedics in General Practice	New York University Post Graduate Medical School 550 First Ave New York	G	BC	LC WR Sem	21	6/10/57	6/12/57	C 3 days	55

OTOLARYNGOLOGY
(See also Anatomy Ophthalmology and Otolaryngology, and Surgery)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Otolaryngology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sur O	50	Arranged		C 12 days	50
Endaural Otologic Surgery	Northwestern University Medical School 303 E Chicago Ave Chicago 11	S	SC	Lab, Pt Dem Sur Sem Lec Pan	172	2/27/57	3/25/57	C 20 days	500
Audiology	Northwestern University Medical School 303 E Chicago Ave Chicago 11	S	SC	Lab, Pt Dem Lec	52	3/26/57	3/31/57	C 6 days	100
Fellowship Fenestration Surgery	Northwestern University Medical School 303 E Chicago Ave Chicago 11	S	SC	Lab Pt Dem LC WR Sur Sem Lec Pan	960	Arranged		C 80 days	500
Annual Otolaryngologic Assembly	University of Illinois College of Medicine 1853 W Polk St Chicago 12	S	SC	Lab Sur Sem Lec Pan Cad O AV	60	10/ 1/56	10/ 7/56	C 7 days	125
Clinical and Anatomical Course in Otorhinolaryngology	Indiana University School of Medicine 1100 W Michigan St Indianapolis	S	SC	Lab Lec O, AV	115¼	3/25/57	4/ 6/57	C 13 days	250
Otolaryngology Conference	State University of Iowa Iowa City	B	BC	Pt Dem, Lec Pan O AV	9	11/ 2/56	11/ 3/56	C 1½ days	15

Otolaryngology	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	8	BO	Pt Dem Lec Pan O AV	18	4/18/57	4/20/57	O 3 days	50
Otolaryngology for Specialists	Continuation Medical Education 1312 Mayo Memorial University of Minnesota Minneapolis	8	BO	Lec O	16	6/20/57	6/22/57	O 3 days	30
Home Study Course in Otolaryngology	American Academy of Ophthalmology and Otolaryngology 100 First Ave Building Rochester Minn	8	HS(C)	Reading	Unknown	9/ 1/56	6/30/57	10 mo	20
Medical Otolaryngology	Hansel Foundation 634 N Grand Ave St Louis	8	SO	Lab Pt Dem I O Pan O AV FPP	80	Arranged		O 12 days	250
Histopathology of the Ear Nose and Throat (PM 31)	Columbia Presbyterian Medical Center 630 W 168th St New York	8	SCI	Lab	32	4/ 9/57	[illegible]/30/57	I 10 sessions 2 hr twice weekly Tuesday Thursdays	100
Otolaryngologic Plastic Surgery	Manhattan General Hospital 307 Second Ave New York	8	SC	Lab Pt Dem I C WR Sur Lec O AV FPP	72	9/ 5/56	9/11/56	C 7 days	150
Trans Meatal Surgery (PM 30)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	8	SC	Lab Sur	10	9/10/56 1/8/57	9/21/56	C 10 days	[illegible]
Mobilization of Stapes (PM 31)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	8	SC	Lab Pt Dem Sur	120	9/24/56 3/18/57	10/12/56	C 15 days	300
Combined course in (A) Indirect Laryngoscopy and Voice Rehabilitation and (B) Audiology (PM 32)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	8	SC	Pt Dem I C Sem	12	2/11/57	2/16/57	C 6 days	150
Rhinoplasty and Otoplasty (PM 33)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	8	SC	Lab I C Sur Lec	11	7/13/57	7/27/57	C 14 days	350
Clinical Otolaryngology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem I C Lec AV	330	10/1/56 1/1/57	12/31/56	C 112 days	150
Operative Nose & Throat (Dissection)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Cad Sur FPP	24	10/ 1/56 4/ 1/57	11/15/56	I 12 sessions 2 hr twice weekly Tuesdays Thursdays	150
Head and Neck Dissection	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Sur Cad FPP	18	Arranged		I 9 sessions 2 hr twice weekly Tuesdays Thursdays	150
Advanced Otology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lab I C Sur Sem Lec O AV FPP	12	Arranged		I 6 sessions 2 hr 3 times a week Tuesdays Thursdays Saturdays	250
Head and Neck Dissection	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lec Cad FPP	24	Arranged		I 12 sessions 2 hr twice weekly Tuesdays Thursdays	150
Operation Otology (Cadaver)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Sur Lec Cad FPP	12	Arranged		I 6 sessions 2 hr weekly Tuesdays	100
Surgical Anatomy of Nose and Accessory Sinuses	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem I C WR Sem Lec AV	18	Arranged		C 24 days	150
67 A Audiology	New York University Post Graduate Medical School 550 First Ave New York	8	BO	Pt Dem Lec	21	9/24/58	9/30/58	O [illegible] days	75
68 A Neuro Otolaryngology	New York University Post Graduate Medical School 550 First Ave New York	8	BC	I C Lec	21	9/26/58	9/28/58	O 3 days	60
69 A Endaural Surgery	New York University Post Graduate Medical School 550 First Ave New York 16	8	SC	Pt Dem Cad Lec	70	11/ 6/58 1/28/57	11/17/58	C 10 days	300
70 A Laryngology and Surgery of the Larynx and Neck	New York University Post Graduate Medical School 550 First Ave New York	8	SC	Lab Cad Lec	70	1/ 7/57	1/18/57	C 10 days	[illegible]
Sixth Annual Teaching Day in Otolaryngology	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	8	BC	Sem Lec Lan O AV	8	Spring 57	Spring 57	C 1 day	Unknown

Key will be found on page 1278

OTOLARYNGOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Postgraduate Course in Otology Rhinology Laryngology Maxillo Facial Surgery Bronchoscopy and Esophagoscopy	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	S	BC	Lec Pan, O AV	10	2/27/57	2/28/57	C 2 days	15
Postgraduate Convention of the Oregon Academy of Ophthalmology and Otolaryngology	Oregon Academy of Ophthalmology and Otolaryngology 603 Mayer Bldg Portland 5 Ore course at University of Oregon Medical School Portland Ore	S	BC	Pt Dem Lec Pan O AV	12	3/25/57	3/26/57	C 2 days	60
Laryngology and Laryngeal Surgery	Temple University School of Medicine and Hospital 3400 N Broad St Philadelphia 40	B	SC	Lab Pt Dem I C Sur Sem Lec Pan O AV FPP	80	11/ 5/56	11/10/56	C, 11 days	250

PATHOLOGY
(See also Gynecology, Malignant Disease, and Pediatrics)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
General and Surgical Pathology	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lab Lec Pan	194	10/ 2/56	6/ 4/57	I 64 sessions 4 Hr Tuesdays, 2 Hr Thursdays	175
Orthopedic Pathology	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	S	SCI	Lab Lec	Unknown	9/56	6/57	I Once Weekly 9 mo Thursdays	10
Pathology of Diseases of Laboratory Animals	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	B	SC	Lab Lec	40	12/10/56	12/14/56	C, 5 days	Nil
Ophthalmic Pathology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	B	SC	Lab Lec	40	3/25/57	3/29/57	C 5 days	Nil
Application of Histochemistry to Pathology	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	B	BC	Lab Lec O FPP	24	5/ 6/57	5/ 8/57	C 3 days	Nil
Neuropathology	University of Maryland School of Medicine Lombard and Greene Sts Baltimore	S	SC	Lab Sem	Unknown	Arranged	Arranged	6 mo full time	210
Gynecological and Obstetrical Pathology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Kings County Hospital Brooklyn N Y	S	SCI	Lec AV	20	3/57	5/57	I, 10 sessions 3 hr weekly Fridays	100
Surgical Pathology (PM 31)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SCI	Lab	30	1/19/57	4/27/57	I 15 sessions 2 hr weekly Saturdays	100
Gynecological and Obstetrical Pathology (c)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LO WR Sur Sem, Lec AV EPP	30	10/ 1/56 4/ 1/57	10/15/56	C 10 days	100
Urological Pathology (b)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LO WR, Sur Sem Lec AV EPP	30	10/ 1/56 4/ 1/57	10/15/56	C, 10 days	150
Surgical Pathology (a)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LO, WR Sur Sem Lec AV EPP	360	10/ 1/56 4/ 1/57	12/31/56	C 72 days	300
General Pathology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Unknown	Unknown	10/ 1/56	9/30/57	C 261 days full time	Unknown
144 A Pathology for Surgeons	New York University Post Graduate Medical School 550 First Ave New York 16	S	SCI	Lab Lec	16	10/ 1/56 4/ 1/57	11/20/56	I 16 sessions 1 hr twice weekly Mondays Thursdays	75
145-A Histopathology for Gynecologists	New York University Post Graduate Medical School 550 First Ave New York 16	S	SCI	Lab Lec	16	10/ 2/56 4/ 2/57	11/27/56	I 16 Sessions 1 hr Twice weekly Tuesdays Fridays	75

Surgical Pathology	University of Pittsburgh School of Medicine 3941 O Hara St Pittsburgh course at Veterans Hospital Pittsburgh	S	SCI	Lec AV	13	1/ 9/57	4/ 3/57	I 11 sessions 1 hr weekly Wednesdays	Unknown
Postgraduate Refresher Course in Surgical Pathology and Pathologic Anatomy	University of Texas Post Graduate School of Medicine 213 West Ave G Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	S	SC	Lab Pan AV EPP	88	Unknown	Unknown	C 12 days	2
Surgical Pathology Refresher Course	Memorial Hospital of Laramie County Cheyenne Wyo	S	SCI	Pt Dem Sem O AV EPP	60	Arranged		I 20 sessions 3 hr weekly	Nil

PEDIATRICS

Pediatrics	University of California School of Medicine Los Angeles 24	G	BC	Lec Pan AV	15	10/25/56	10/27/56	C 2½ days	50
861—Pediatric Clinics for General Practitioners	University of Southern California School of Medicine Post Graduate Division 2025 Zonal Ave Los Angeles 33 course at Children s Hospital Los Angeles	G	SCI	Pt Dem LC Lec	20	Fall 56	Spring 57	I Tuesdays	50
General Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Pt Dem LC WR Sem Lec O	20	9/10/56 3/20/57	11/21/56	I 10 sessions 2 hr weekly Wednesdays	100
Course V Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sem Lec O	70	5/13/57	5/25/57	C 12 days	150
Intensive Course in Neuromuscular Diseases of Children with Special Emphasis on Cerebral Palsy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sem Lec O AV	80	6/17/57	6/29/57	C 12 days	225
Clinical Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sem O	60	Arranged		C 12 days	60
Course IV Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sem Lec O AV	1500	Arranged		C 12 mo	750
Clinical Pediatrics	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sem O	120	Arranged		C 21 days	100
Postgraduate Course in Pediatrics	Indiana University School of Medicine 1100 W Michigan St Indianapolis	G	BC	Lec	4	9/26/56	9/26/56	C 1 day	10
Pediatrics Postgraduate Course	State University of Iowa Iowa City	B	BC	Pt Dem Lec Pan O AV	10	9/18/56	9/19/56	C 1½ days	15
Pediatrics	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Kan	B	BC	Pt Dem Lec Pan O AV	21	3/11/57	3/13/57	C 3 days	35
Pediatric Postgraduate Course	University of Louisville Medical Center 101 W Chestnut St Louisville Ky	G	SCI	Sem Lec Pan O AV	21	5/ 7/57	6/25/57	I 8 sessions 3 hr weekly Tuesdays	20
Pediatrics 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	S	SC	Lab Pt Dem LC WR Sem Lec	Unknown	10/ 1/56	5/31/57	C 8 mo	800
Pediatrics 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Children s Hospital Boston	S	SC	Pt Dem LC WR Lec	Unknown	10/ 1/56 2/ 4/57	1/25/57	C 101 Days	600
Pediatrics 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston 15 course at Massachusetts General Hospital Fruit St Boston	G	SC	Pt Dem LC Lec O AV	16	Unknown		C 8 days	100
Pediatric Metabolism and Endocrinology	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	BC	Pt Dem LC Lec O AV	17	Unknown	Unknown	C 3 days	50
Pediatrics 2A	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Children s Hospital Boston	S	SC	Lab Pt Dem LC WR Lec	Unknown	Arranged	Arranged	C by arrangement	200 for 1 mo
Pediatrics	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BC	Pt Dem Lec Pan AV	11	3/21/57	3/23/57	C 3 days	50
Pediatrics	University of Michigan Medical School Department of Postgraduate Medicine University Hospital Ann Arbor Mich	G	BC	Pt Dem Lec Pan O AV	18	1/21/57	1/23/57	C 3 days	30
Pediatrics for Pediatricians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BC	Lec O	15	10/ 4/56	10/ 6/56	C 3 days	30

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PEDIATRICS - Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Pediatrics for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota, Minneapolis 14	G	SC	Lec O	15	3/ 4/57	3/ 6/57	C, 3 days	30
Pediatrics Seminar	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Pt Dem LC WR Sem Lec O AV	12	4/ 1/57	4/ 2/57	C, 2 days	20
Pediatric Clinical Seminar	Albany Medical College 47 New Scotland Ave Albany N Y	G	BC	Sem Lec Pan	6	12/ 6/56	12/ 6/56	C 1 day	10
Clinical Pediatrics	Albany Medical College 47 New Scotland Ave Albany N Y	G	SCI	Pt Dem WR Sem Lec	21	3/28/57	5/ 2/57	I 6 sessions 3½ hr weekly Thursdays	25
Pediatrics	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	SCI	Pt Dem LC WR Sem Lec Pan O AV	24	3/13/57	4/17/57	I 6 sessions 4 hr weekly Wednesdays	50
Tumors of Childhood	Memorial Center for Cancer and Allied Diseases 444 E 68th St New York	B	SCI	Pt Dem LC WR Sem Lec O AV	16	9/56 11/56 2/57 4/57	11/56	I 8 sessions 2 hr weekly, Fridays	Nil
Postgraduate Course in Pediatric Oncology	Memorial Center for Cancer and Allied Diseases 444 E 68th St New York	B	BC	Pt Dem LC WR, Sem Lec O AV	24	4/24/57	4/26/57	C, 3 days	35
Bureau of Child Health Pre-Service Training Course	New York City Department of Health 125 Worth St New York course at Kips Bay Health Center New York	G	SC	Lec FPP	75	9/56 2/57		C 3 hrs daily for 25 days	Nil
Bureau of School Health Pre Service Training Course	New York City Department of Health 125 Worth St New York 13 course at Kips Bay Health Center New York	G	SC	Lec FPP	75	10/ 8/56 4/15/57	11/26/56	C, 30 days	Nil
Growth and Development of Personality from Infancy through Adolescence	Department of Health 125 Worth St New York	G	SCI	Lec	15	2/57		I 12 sessions ½ hr twice weekly Thursdays Fridays	Nil
Pediatrics	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Lec	144	Arranged		C 24 days	100
614-A Review of Clinical Pediatrics	New York University Post Graduate Medical School 550 First Ave New York 16	G	SC	Pt Dem LC Lec	42	9/17/56 3/ 4/57	9/22/56	C 6 days	55
6111 A Symposium on Tuberculosis and other Pulmonary Diseases in Children	New York University Post Graduate Medical School 550 First Ave New York 16	G	SC	Pt Dem LC WR Lec	35	10/15/56 4/22/57	10/19/56	C 5 days	65
611 A Clinical Pediatrics	New York University Post Graduate Medical School 550 First Ave New York 16	G	SCI	Pt Dem LC WR Lec	120	10/29/56	1/ 4/57	I, 30 sessions 4 hr 3 times weekly Mondays Wednesdays Fridays	125
615-A Pediatric Endocrinology and Related Metabolism	New York University Post Graduate Medical School 550 First Ave New York 16	G	BC	Pt Dem Lec AV	28	11/12/56	11/15/56	C, 4 days	60
618-A Pediatric Cardiology	New York University Post Graduate Medical School 550 First Ave New York 16	G	SC	Lec	35	12/ 3/56	12/ 7/56	C 5 days	55
613-A Pediatric Refresher Course	New York University Post Graduate Medical School 550 First Ave New York 16	G	SC	LC Lec	70	1/14/57 4/ 1/57	1/25/57	C 10 days	125
Problems in Pediatric Practice	State University of New York Upstate Medical Center 766 Irving Ave Syracuse N Y	B	BC	Pt Dem Sem, O AV	12	Spring	Spring	C 2 days	10
Southern Pediatric Seminar	Southern Pediatric Seminar Saluda N C	G	SC	Pt Dem Sem Lec Pan	80	7/ 8/57	7/20/57	C 13 days	50
Southern Pediatric Seminar	Southern Pediatric Seminar Saluda N C	G	SC	Sem Lec Pan AV	Unknown	7/22/57	7/27/57	C 6 days	25
Practical Applications of the Principles of Immunization	Academy of Medicine of Cleveland & Cuyahoga County Medical Society 2009 Adelbert Rd Cleveland 6	B	BC	Lec Pan	8	3/15/57		C 1 day	Nil
Current Therapy in Pediatric Practice	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	G	BC	Lec Pan, O AV	12	9/26/56	9/27/56	C 2 days	15
Pediatrics in General Practice	Hahnemann Medical College and Hospital 230 N Broad St Philadelphia	G	SCI	Pt Dem Lec Pan AV		9/56	Unknown	I 2 hr Wednesdays	50
Pediatrics	The University of Texas Post-Graduate School of Medicine Texas Medical Center Houston, Tex course at Scott and White Clinic Hospitals Temple Tex	G	MT	Lab Pt Dem LC WR	Unknown	9/56	8/57	First Monday of each month	25

Postgraduate Refresher Course in Pediatrics	University of Texas Post Graduate School of Medicine 213 W Avenue G Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	G	SC	Pt Dem LC WR EPP	176	1/57	12/57	O 24 days a month	

PERIPHERAL VASCULAR DISEASE

Treatment of Varicose Veins	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	BO	Lab Pt Dem LC Sur Lec O	10	9/10/56 10/ 8/56 11/12/56 12/10/56 2/ 6/57 3/ 4/57 4/29/57 6/10/57	9/12/56	O 2 days	50
Varicose Veins The Peripheral System	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan	14	1/15/57	2/26/57	I 7 sessions 2 hr weekly Tuesdays	30
Peripheral Vascular Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Coney Island Hospital Brooklyn New York	G	SOI	Pt Dem Lec	10	10/56	12/56	I 10 sessions 1 hr weekly Mondays	20
Peripheral Vascular Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 course at Jewish Hospital Brooklyn	G	SCI	LC Lec	10	4/57	5/57	I 10 sessions 1 hr twice weekly Mondays Fridays	20
Medicine (PM 65)	Montefiore Hospital 210th St & Bainbridge Ave New York	G	SCI	Lab Pt Dem LC WR Lec AV	84	9/20/56	3/28/57	I 28 sessions 3 hr weekly Thursdays	125
5417-A Peripheral Vascular Diseases	New York University Post Graduate Medical School 550 First Ave New York	G	SC	Pt Dem LC Lec	35	11/26/56	11/30/56	O 5 days	55
5418-A Peripheral Vascular Diseases	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/ 9/57	5/28/57	I 8 sessions 2 hr weekly Tuesdays	45

PHYSICAL MEDICINE AND REHABILITATION

Rehabilitation	Tufts University School of Medicine Postgraduate Division 171 Harrison Ave Boston	G	BO	Pt Dem Lec Pan AV	14	2/28/57	3/ 2/57	O 3 days	90
The Essentials of Lower Extremity Bracing	American Congress of Physical Medicine and Rehabilitation 30 N Michigan Ave Chicago course at Ambassador Hotel Atlantic City N J	S	BC	Lec O AV	2	9/10/56	9/10/56	O 1 day	2/hr
A Guide for Medical Writing	American Congress of Physical Medicine and Rehabilitation 30 N Michigan Ave, Chicago course at Ambassador Hotel Atlantic City N J	S	BO	Lec O AV	2	9/10/56	9/10/56	O 1 day	2/hr
Intensive Course in Physical Medicine and Rehabilitation	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	SCI	Pt Dem LC WR Sem Lec Pan O AV EPP	120	9/26/56	2/27/57	I 20 sessions 6 hr weekly Wednesdays	300
Physical Medicine and Rehabilitation of Clinical Practice	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BO	Pt Dem LC WR Sem Lec Pan O AV EPP	11	10/31/56	11/ 1/56	O 2 days	30
Physical Medicine and Rehabilitation	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SO	Pt Dem LC Lec AV	144	Arranged		O 24 days	100
671-A Physical Medicine and Rehabilitation	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Pt Dem Lec	70	1/ 2/57	1/15/57	O 10 days	100
Considerations of Pain Control Physical and Psychological	American College of Physical Medicine 30 N Michigan Ave, Chicago course at Ambassador Hotel Atlantic City N J	S	BC	Lec O AV	2	9/11/56	9/12/56	O 2 days	2/hr

PHYSIOLOGY
(See also Internal Medicine)

Pathological Physiology	University of California School of Medicine Los Angeles 24	G	SCI	Lec AV	24	1/28/57	4/15/57	I 12 sessions 2 hr weekly, Mondays	50
Basic Science Applied Physiology	San Diego County General Hospital North End of Front St San Diego 3 Calif	S	SOI	Lec Pan AV	24	11/56	1/57	I 12 sessions 2 hr weekly Thursdays	Nil

Key will be found on page 1278

PHYSIOLOGY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Physiology A Basic Course	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lec, O	20	9/19/56 3/20/57	11/21/56	I 10 sessions 2 hr weekly, Wednesdays	100
Normal and Pathological Physiology (PM 32)	Mount Sinai Hospital Fifth Ave & 100th St New York 29	G	SCI	Lec	52	10/17/56	4/17/57	I 26 sessions 2 hr weekly, Wednesdays	150
Physiology of the Digestive Tract (PM 30)	Mount Sinai Hospital Fifth Ave & 100th St, New York 29	G	SCI	Lec	36	1/ 9/57	5/ 8/57	I 18 sessions 2 hr weekly Wednesdays	100

POLIOMYELITIS

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
A Seminar in Comprehensive Patient Care in Neuromuscular Disabilities	Respiratory Center for Poliomyelitis Rancho Los Angeles Hospital Hondo, Calif course at Orthopaedic Hospital 2400 S Flower St, Los Angeles	G	SC	Pt Dem Sem, Lec, Pan, AV	31	10/22/56	10/26/56	C, 5 days	15
Physical Therapy and Occupational Therapy in the Care of Poliomyelitis	Georgia Warm Springs Foundation Warm Springs, Ga	G	SC	Pt Dem, LC Lec, Pan, O Av EPP	40	10/ 1/56 1/ 7/57 4/ 1/57	10/ 5/56	C, 5 days	Nil
Physical Therapy and Occupational Therapy in the Care of Poliomyelitis	Georgia Warm Springs Foundation Warm Springs Ga	G	SC	Pt Dem LC, Lec, Pan, O Av, EPP	300	10/56 1/ 7/57 4/ 1/57	12/21/56	C, 3 mo	Nil
Physical Therapy and Occupational Therapy in the Care of Poliomyelitis	Georgia Warm Springs Foundation Warm Springs, Ga	G	SC	Pt Dem LC, Lec Pan, O Av, EPP	515	10/56 1/ 7/57 4/ 1/57	3/29/57	C 6 mo	Nil
Poliomyelitis Refresher Course for Physicians	Children s Medical Center 800 Longwood Ave Boston	G	SC	Pt Dem LC, WR Sem, Lec, Pan, O AV	40	5/20/57 7/29/57	5/24/57	C, 5 days	50
Acute Treatment and Rehabilitation of Paralytic Respiratory Failure	University of Washington School of Medicine Seattle 5	G	BC	Pt Dem, Lec, Pan, O	14	8/57	8/57	C 2 days	20

PROCTOLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Proctoscopy & Sigmoidoscopy	Cook County Graduate School of Medicine 707 S Wood St, Chicago 12	G	BCI	Pt Dem LC, Sur Lec O, EPP	9	9/11/56 10/ 9/56 11/13/56 1/ 8/57 2/ 5/57 3/12/57 4/16/57 5/14/57 6/ 4/57	9/25/56	I 3 sessions 3 hr weekly, Tuesdays	50
Proctology	Cook County Graduate School of Medicine 707 S Wood St, Chicago 12	G	SCI	Lec, O	10	10/24/56 3/13/57	11/21/56	I 5 sessions 2 hr weekly, Wednesdays	100
Proctology for General Physicians	Continuation Medical Education 1342 Mayo Memorial, University of Minnesota Minneapolis 14	G	SC	Lec, O Sur	30	5/13/57	5/17/57	C 5 days	50
Proctology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Jewish Hospital Brooklyn N Y	G	SCI	LC, Lec AV	24	10/56 4/57	12/56	I 12 sessions 2 hr twice weekly Mondays and Fridays	40
Office Proctology (PM30)	Mount Sinai Hospital Fifth Ave and 100th St, New York	G	BC	Pt Dem, LC Sem	14	11/12/56 2/18/57	11/13/56	C, 2 days	50
Proctology, Gastroenterology with Operative Proctology (Cadaver)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab Pt Dem LC WR Sur Cad Lec, AV, EPP	150	10/ 1/56 4/ 1/57	11/12/56	C, 36 days	200
Clinical Proctology	New York Polyclinic Medical School and Hospital 345 W 50th Street New York	G	SC	Pt Dem LC Lec AV	48	10/ 1/56 4/ 1/57	10/31/56	C 24 days	75
Clinical Proctology and Gastroenterology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab, Pt Dem LC WR, Lec, AV	100	10/ 1/56 4/ 1/57	11/12/56	C 30 days	100
Proctology (Clinical and Cadaver)	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lab, Pt Dem LC WR, Cad, Sur, Lec AV EPP	90	10/ 1/56 4/ 1/57	11/15/56	C 30 days	175
Proctology	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston Tex course at Scott and White Clinic Hospitals Temple Tex	G	SC	Lab WR, Sur	Unknown	Scheduled on request		C 12 days	25

Postgraduate Refresher Course in Proctology	The University of Texas Postgraduate School of Medicine 213 West Ave G Temple Tex course at Scott and White Memorial Hospitals Scott Sherwood and Brindley Foundation Temple Tex	G	SC	Lec Sur O	88	Unknown	Unknown	C 1 days	25

PSYCHIATRY

Treatment of Emotional Problems in Office Practice Advanced Course	University of California School of Medicine Los Angeles 24	G	SCI	Lec	24	9/20/56	12/13/56	I 12 sessions 2 hr weekly Thursdays	75
Treatment of Emotional Problems in Office Practice—Basic Course	University of California School of Medicine Los Angeles 24	G	SCI	Lec	24	1/ 3/57	3/21/57	I 12 sessions 2 hr weekly Thursdays	50
Seminars on the Psychological Aspects of Medical Practice	University of California Medical Center Second and Parnassus San Francisco	G	SCI	Lec	20	9/56	12/56	I 10 sessions 2 hr weekly Wednesdays	35
Clinical Psychology	Program Director 10th Conn Postgraduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine 333 Cedar St New Haven Conn	S	BCI	Lec O	4	11/21/56	12/ 3/56	I 4 sessions 1 hr weekly Mondays	Nil
Basic Psychiatry	Program Director 10th Connecticut Postgraduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn	S	SCI	Lec O AV	40	1/ 7/57	7/ 1/57	I 27 sessions 1½ hr weekly Mondays	Nil
Child Psychiatry	Program Director 10th Connecticut Postgraduate Seminar in Psychiatry and Neurology Connecticut State Hospital Middletown Conn course at Yale University School of Medicine New Haven Conn	S	SCI	Lec O AV	18	3/11/57	4/15/57	I 12 sessions 1½ hr weekly Mondays	Nil
Symposium on Preventive and Social Psychiatry	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	B	BO	Sem Lec Pan O	21	4/15/57	4/17/57	C 3 days	Nil
The Medical Practitioner's Contributions Toward Healthy Emotional Development	North Shore Health Resort 225 Sheridan Rd Winnetka Ill	G	SCI	Sem Lec O AV	18	10/ 3/56	6/ 5/57	I 9 sessions 2 hr monthly first Wednesdays	Nil
Maintaining Emotional Health	The Menninger Foundation Topeka Kan	S	SO	Pt Dem Sem Lec Pan O AV	10	3/ 5/57	3/ 8/57	C 5 days	250
Institute of Psychiatric Treatment	Boston State Hospital 591 Morton St Boston	S	BO	Pt Dem, Sem Lec O EPP	25	9/27/56	9/29/56	C 3 days	35
Psychiatric Principles in General Practice	Center for Continuation Study [illegible] Mayo Memorial University of Minnesota Minneapolis course at Douglas Lodge Itasca State Park Minn	G	BO	Lec O	18	9/ 5/56	9/ 7/56	C 3 days	150 Includes lodging and food expenses
Psychiatric Aspects in General Medicine	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BO	Pt Dem Sem Lec Pan O AV	15	12/ 6/56	12/ 8/56	C 2½ days	25
Child Psychiatry (Advanced)	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16, N Y course at Kings County Hospital Brooklyn N Y	S	SCI	Pt Dem Lec	10	10/56	12/56	I 10 sessions 1 hr weekly, Mondays	20
Child Psychiatry	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Kings County Hospital Brooklyn N Y	G	SCI	Lec	10	4/57	6/57	I 10 sessions 1 hr weekly, Mondays	20
Fundamentals of Psychoanalytic Technique	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Lec	30	9/10/56	2/ 4/57	I 20 sessions 1½ hr weekly Mondays	80
The Dreaming Process	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem Lec	15	9/17/56	11/19/56	I 10 sessions 1½ hr weekly Mondays	40
Continuous Case Seminar	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem	15	9/18/56	11/27/56	I 10 sessions 1½ hr weekly Tuesdays	40
Readings in Psychoanalysis Part II The Works of Freud	American Institute for Psychoanalysis 220 W 98th St New York 25	S	SCI	Lec	15	9/18/56	11/27/56	I 10 sessions 1½ hr weekly Tuesdays	30
Clinical Conferences on Psychoanalytic Case Histories II	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem	15	9/21/56	11/23/56	I 10 sessions 1½ hr weekly Fridays	30

Key will be found on page 1278

PSYCHIATRY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Clinical Conferences in Psychoanalysis	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem	15	9/21/56	11/23/56	I 10 sessions 1½ hr weekly Fridays	40
Group Psychodynamics and Group Psychoanalysis	American Institute for Psychoanalysis 220 W 98th St New York course at New York School for Social Research New York		SCI	Lec	22½	9/24/56	1/14/57	I 15 sessions 1½ hr weekly Mondays	24
A Basic Orientation in Psychoanalysis	American Institute for Psychoanalysis 220 W 98th St New York course at New York School for Social Research New York	S	SCI	Lec	22½	9/25/56	1/22/57	I 15 sessions 1½ hr weekly Tuesdays	24
Seminar in Child Therapy Psychoanalysis	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem Lec	10½	11/20/56	1/21/57	I 7 sessions 1½ hr weekly, Mondays	21
Clinical Conferences on Case Histories 1	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem	15	11/30/56	2/8/57	I 10 sessions 1½ hr weekly Fridays	30
Readings in Psychoanalysis Part III	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Lec	22½	2/4/57	6/3/57	I 15 sessions 1½ hr weekly, Mondays	45
Theory of Neurosis	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Lec	18	2/5/57	4/23/57	I 12 sessions 1½ hr weekly Tuesdays	36
The Psychoanalytic Process	American Institute for Psychoanalysis 220 W 98th St, New York	S	SCI	Sem Lec	22½	2/5/57	5/21/57	I 15 sessions 1½ hr weekly Tuesdays	60
Neuroses and Psychoses	American Institute for Psychoanalysis 220 W 98th St New York course at New School for Social Research New York	S	SCI	Lec	22½	2/5/57	5/21/57	I 15 sessions 1½ hr weekly Tuesdays	24
Workshop on Dreams	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem	15	2/8/57	4/19/57	I 10 sessions 1½ hr weekly Fridays	40
The Psychoanalytic Relationship	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Sem	22½	2/11/57	6/3/57	I 15 sessions 1½ hr weekly Mondays	60
Maturing Fulfillment and Frustration	American Institute for Psychoanalysis 220 W 98th St New York course at New School for Social Research New York	S	SCI	Lec	22½	2/11/57	5/20/57	I 15 sessions 1½ hr weekly Mondays	24
Psychoanalytical Contributions to Psychiatry	American Institute for Psychoanalysis 220 W 98th St New York	S	SCI	Lec	22½	2/15/57	6/7/57	I 15 sessions 1½ hr weekly Fridays	45
PM 1 Psychiatry	Columbia University College of Physicians and Surgeons 630 W 168th St New York 32 course at New York State Psychiatric Institute New York 32	S	SC	Lab Pt Dem Sem Lec	350	10/1/56	12/7/56	C 50 days	Unknown
725 Psychiatric Film Showing	Postgraduate Center for Psychotherapy 218 E 70th St New York	G	SCI	Sem AV	Unknown	10/1/56 2/18/57	1/15/57	I 8 sessions 1½ hr weekly Mondays	Nil
703 The Development of Psychoanalytic Thinking	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	22½	10/1/56 2/11/57	1/22/57	I 15 sessions 1½ hr weekly, Mondays	40
704 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	22½	10/2/56	1/22/57	I 15 sessions 1½ hr weekly Tuesdays	40
715 Introduction to Psychotherapy & Psychotherapy Techniques	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	10½	10/3/56	1/23/57	I 15 sessions 1½ hr weekly, Wednesdays	40
717 Clinical Conferences	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	15	10/3/56	12/5/56	I 10 sessions 1½ hr weekly Wednesdays	30
706 Techniques of Dream Interpretation	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	15	10/4/56	1/24/57	I 10 sessions 1½ hr weekly Thursdays	30
716 Basic Psychiatry and Neurology	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Lec	10½	10/4/56 2/7/57	1/24/57	I 15 sessions 1½ hr weekly Thursdays	40

818 Clinical Conferences on Treatment Planning	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	22½	2/12/57	5/28/57	I 15 sessions 1½ hr weekly Tuesdays	10
801 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	22½	2/14/57	5/28/57	I 15 sessions 1½ hr weekly Tuesdays	10
806 Continuous Case Seminar	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	15	2/14/57	4/24/57	I 10 sessions 1½ hr weekly Thursdays	35
817 Clinical Conferences Character Disorders	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem	15	2/14/57	4/21/57	I 10 sessions 1½ hr weekly Thursdays	30
Basic Psychoanalytic Principles A 1	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	G	SCI	Sem Lec O	16½	10/ 1/56	12/10/56	I 11 sessions 1½ hr weekly Mondays	35
Evolution of Psychoanalytic Concepts AS 3	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	S	SCI	Sem Lec O	22	10/ 3/56	12/12/56	I 11 sessions 2 hr weekly Wednesdays	4
Seminar on Child Therapy C 8 1	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	S	SCI	Sem Lec O	20	10/ 3/56	12/ 5/56	I 10 sessions 2 hr weekly Wednesdays	40
Modern Conceptions of Psychoanalysis B 1	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	B	SCI	Lec O	9	10/ 4/56	12/13/56	I 6 sessions 1½ hr weekly Thursdays	20
Relationship of Neurophysiology and Psychiatry C 5	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	S	BC	Sem Lec O	12	11/ 3/56	11/18/56	C 4 days	25
Clinical Conceptions of Mental Disorders BS 16	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	S	SCI	Sem Lec O	20	1/10/57	5/16/57	I 10 sessions 2 hr weekly Thursdays	40
Literature of Psychoanalysis Part II A 10	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	G	SCI	Lec O	16½	1/17/57	6/ 6/57	I 11 sessions 1½ hr weekly Thursdays	35
Case Seminar on Clinic Treatment of Adolescents CS 10	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	S	SCI	Sem Lec O	16	1/28/57	5/ 6/57	I 8 sessions 2 hr weekly Mondays	35
Symbolic Organization A 16	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	B	SCI	Sem Lec O	10	2/ 6/57	4/ 3/57	I 5 sessions 2 hr weekly Wednesdays	25
Seminar on Current Issues in Psychoanalysis CS 14	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	S	SCI	Sem Lec O	12	2/ 7/57	5/16/57	I 8 sessions 1½ hr weekly Thursdays	25
Practical Psychiatry	University of Washington School of Medicine Seattle 5	G	SC	Pt Dem LC WR Sem Lec O	35	7/23/57	7/27/57	C 5 days	50

PSYCHOSOMATIC MEDICINE

Mental Problems of Long Term Illness	City of Hope Medical Center 1500 E Duarte Rd Duarte Calif	G	BC	Pt Dem Lec Pan O	14	10/ 8/56	10/ 9/56	C 2 days	[illegible]
810 Seminar on Psychosomatic Medicine	Postgraduate Center for Psychotherapy 218 E 70th St New York	S	SCI	LC Sem Lec	22½	10/ 4/56	1/24/57	I 15 sessions 1½ hr weekly, Thursdays	30
The Significance of Physical Symptoms in Personality Disorders	The William Alanson White Institute of Psychiatry Psychoanalysis and Psychology 12 E 80th St New York 28	G	SCI	Sem Lec O	12	10/ 4/56	11/29/56	I 8 sessions 1½ hr weekly Thursdays	25
Psychosomatic Aspects of Obstetrics and Gynecology	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	G	BC	Sem Lec Pan O AV	10	3/20/57	3/21/57	C 2 days	15

PUBLIC HEALTH
(See also Occupational Medicine)

Preventive Medical Aspects of City County and School Health Units	University of Nebraska College of Medicine 42nd and Dewey Omaha	G	BC	Lec O AV	6	9/ 6/56	9/ 6/56	C 1 day	10
Extension Course in Public Health	New York State Department of Health State Office Building Albany N Y course at Rochester Syracuse Buffalo Albany Poughkeepsie	G	CC	Sem Lec	30	Anytime	1 yr from beginning	Write for details	25

Key will be found on page 1278

PULMONARY DISEASE
(See also Radiology)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Recent Advances in the Diagnosis and Management of Tuberculosis	City of Hope Medical Center 1500 E Duarte Rd Duarte, Calif	G	BC	Pt Dem Lec, Pan O	21	4/22/57	4/24/57	C 3 days	25
A Symposium on Pulmonary Emphysema	Highland Alameda County Hospital 2701 14th Ave, Oakland 6 Calif	B	BC	Lab Sur Sem Lec Pan O AV	11	3/15/57	3/16/57	C, 1½ days	40
Ninth Annual Symposium on Pulmonary Diseases	University of Colorado School of Medicine Office of Postgraduate Medical Education 4200 E 9th Ave, Denver 20	B	SC	Pt Dem Sem Lec Pan	10	9/10/56	9/14/56	C 5 day	Unknown
11th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St, Chicago 11 course at Hotel Knickerbocker Chicago	G	SC	Lec Pan O AV	40	10/15/56	10/22/56	C 5 days	75
9th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St, Chicago 11 course at Park Sheraton Hotel New York	G	SC	Lec Pan O AV	40	11/12/56	11/16/56	C, 5 days	75
2nd Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St Chicago 11 course at San Francisco	G	SC	Lec Pan O AV	40	12/56	12/56	C 5 days	75
10th Annual Postgraduate Course on Diseases of the Chest	American College of Chest Physicians 112 E Chestnut St Chicago 11 course at Bellevue Stratford Hotel Philadelphia	G	SC	Lec Pan O AV	40	3/57	3/57	C 5 days	75
Postgraduate Course in Pulmonary Function	Indiana University School of Medicine 1100 W Michigan St, Indianapolis	G	BC	Lec Pan AV	16	1/21/57	1/22/57	C 2 days	25
In Residence Training in Pulmonary Disease	University of Kansas Medical Center 39th & Rainbow Blvd Kansas City Ks	C	MT	Lab Pt Dem LC WR Sem Lec Pan O AV	Unknown	1/2/57 4/1/57 5/1/57	11/30/56	1 mo	Unknown
Pulmonary Disease	University of Kansas Medical Center 39th and Rainbow Blvd, Kansas City Ks	B	BC	Pt Dem LC Lec Pan O AV	14	1/14/57	1/15/57	C 2 days	30
The Measurement of Pulmonary Function in Health and Disease	Massachusetts TB & Health League 1101 Beacon St Brookline Mass course at Boston City Hospital	S	SC	Lab Pt Dem LC Sem Lec Pan O AV	35	3/25/57	3/29/57	C 5 days	75
Pulmonary Diseases	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital, Ann Arbor Mich	G	BC	Pt Dem Lec Pan O AV	15	4/25/57	4/27/57	C 3 days	30
Pulmonary Diseases	University of Nebraska College of Medicine 42nd and Dewey, Omaha	G	BC	Lec Pan O AV	15	12/13/56	12/15/56	C 2½ days	25
Recent Advances in Chest Disease	University of Buffalo School of Medicine 3435 Main St Buffalo N Y	G	BC	Pt Dem LC WR Sem Lec Pan O AV	14	9/19/56	9/20/56	C 2 days	30
Diseases of the Chest (PM 80)	Columbia University 630 W 168th St New York course at Bellevue Hospital New York	G	SO	LC WR Lec	140	10/1/56 2/1/57	10/31/56	C 20 days	125 first month 75 each additional month
Diseases of the Chest (PM 71)	Montefiore Hospital 210th St & Bainbridge Ave, New York 67	G	SOI	WR Sem Lec	52½	1/8/57	5/28/57	I 21 sessions 2½ hr weekly, Tuesdays	100
5422 A Acute and Chronic Diseases of the Chest	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Pt Dem Lec	16	4/8/57	5/27/57	I 8 sessions 2 hr weekly, Mondays	40
Symposium for General Practitioners on Tuberculosis and Other Pulmonary Diseases	Saranac Lake Medical Society P O Box 262 Saranac Lake N Y	G	SO	Lab Pt Dem, LC WR Lec Pan, O AV	26	7/8/57	7/12/57	C 5 days	40

RADIOLOGY
(See also Cardiovascular Disease Forensic Medicine, Internal Medicine, and Occupational Medicine)

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Roentgen Diagnosis and Therapy	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Pt Dem Lec Pan Sem	33	10/3/56	6/5/57	I 33 sessions 1 hr weekly Wednesdays	100
Radiology Physics and Medical Use of Isotopes	University of Colorado School of Medicine 4200 E 9th Ave Denver 20	B	SCI	Sem	Unknown	10/56	6/57	I once weekly for 9 mos, Tuesdays	10
Radiology 302 Introduction to X rays and Radioisotopes	Yale University School of Medicine 333 Cedar St New Haven, Conn	S	SCI	Lec	11	9/27/56	12/13/56	I 11 sessions 1 hr weekly Thursdays	25
Radiology 303 X ray Physics	Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lab Lec	20	1/10/57	3/14/57	I 10 sessions 2 hr weekly Thursdays	40

Radiology 301 Radioactivity	Yale University School of Medicine 333 Cedar St New Haven Conn	S	SCI	Lab Lec	30	3/21/57	5/23/57	I 10 sessions 3 hr weekly Thursdays	150
Principles of Medical Operation in Nuclear Warfare	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	G	SO	LO Lec O	210	10/ 8/56	11/17/56	O 30 days	Nil
Medico Military Application Course for Radiological Defense Officer	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	G	SO	LO Lec	320	4/ 8/57	5/31/57	O 40 days	Nil
Course I Diagnostic Radiology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem Sem Lec O FPP	68	9/17/56 11/26/56 2/ 4/57 4/29/57	9/29/56	O 12 days	125
Clinical Uses of Radioisotopes	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem LO WR Lec O FPP	60	9/19/56 3/20/57	11/21/56	I 10 sessions 6 hr weekly Wednesdays	200
Diagnostic Roentgenology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem LO Lec O	40	9/19/56 3/20/57	11/21/56	I 10 sessions 4 hr weekly Wednesdays	100
The Clinical Uses of Radioisotopes	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LO Sem Lec O AV FPP	60	10/ 9/56	10/20/56	O 10 days	200
The Clinical Use of Radioactive Iodine-I	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LO Sem Lec O AV FPP	30	4/ 1/57	4/ 5/57	O 5 days	100
Course II Clinical Radiology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem Sem Lec O FPP	100	Arranged		O 21 days	125
Course II Clinical Radiology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem Sem Lec O FPP	50	Arranged		O 12 days	70
Course III X ray Therapy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LO WR Sem Lec O FPP	210	Arranged		O 48 days	300
Course III X ray Therapy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem, LO WR Sem Lec O FPP	130	Arranged		O 21 days	200
Course III X ray Therapy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem LO WR Sem Lec O FPP	60	Arranged		O 10 days	110
Course III X ray Therapy	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Pt Dem, LO WR Sem Lec O FPP	30	Arranged		O 5 days	60
Radiology Conference	State University of Iowa Medical School Iowa City	B	BO	Pt Dem Lec Pan O AV	6	10/56		O 1 day	10
Radiological Physics	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	S	SCI	Lec O	20	2/10/57	4/14/57	I 10 sessions 2 hr weekly, Sundays	30
Radiology and Radioactive Isotopes	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Ks	B	BO	Lec Pan O AV	28	2/11/57	2/14/57	O 4 days	45
Radiology	Tulane University School of Medicine 1430 Tulane Ave New Orleans	G	BO	Pt Dem WR Sem Lec	16	11/ 9/56	11/ 9/56	O 2 days	25
Pediatric Radiology	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Children's Hospital Boston	G	SO	Lab Pt Dem LO Lec O	130	Arranged	Arranged	O 20 days a mo	150
General Radiology 1, 2 and 3	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Peter Bent Brigham Hospital Boston	S	SO	Lab Pt Dem LO Sem Lec O	120	Arranged	Arranged	O 20 days a mo	150
Selected Chest Radiology	Tufts University School of Medicine Post Graduate Division 171 Harrison Ave Boston	G	BO	Pt Dem Lec Pan AV	10	5/17/57	5/18/57	O, 2 days	15
Diagnostic Radiology	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Mich	G	SO	Lec O AV	20	4/ 8/57	4/12/57	O, 5 days	50
Radiation Therapy for Radiologists	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	SO	Sem Lec Pan O	33	11/ 5/56	11/10/56	O 6 days	75
Radiology for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BO	Lec O	15	4/ 8/57	4/10/57	O 3 days	30
American Roentgen Ray Society—Instructional Course	Director of Instructional Courses Mayo Clinic Rochester Minn course at Statler Hotel Los Angeles	S	BO	Lec O AV	8	9/25/56	9/28/56	O 4 days	2 for each course 7 for four courses

Key will be found on page 1278

RADIOLOGY - Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Roentgen Diagnosis in Gastroenterology	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec	8	10/56	12/56	I 8 sessions 1 hr weekly Tuesdays	20
X Ray Diagnosis	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Jewish Hospital Brooklyn N Y	G	SCI	Lec AV	22	10/56 4/57	12/56	I 11 sessions 2 hr weekly, Tuesdays	20
X Ray Diagnosis in Chest Diseases	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16 N Y course at Beth El Hospital Brooklyn N Y	G	SCI	Lec	8	10/56 4/57	12/56	I 8 sessions 1 hr weekly Thursdays	20
Radiological Physics (PM 1)	Columbia Presbyterian Medical Center 630 W 168th St New York 32	S	SCI	Lec	32	1/8/57	4/26/57	I 32 sessions 1 hr twice weekly Tuesdays Fridays	50
Roentgenographic Interpretation of the Diseases of Bones and Joints (PM80)	Hospital for Joint Diseases 1919 Madison Ave New York 35	G	SCI	Lec AV	24	10/3/56 3/6/57	12/19/56	I 12 sessions 2 hr weekly Wednesdays	150
Radiology (PM35)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	S	SCI	Lab Pt Dem, LC Sem	144	9/56 12/56 3/57	11/56	I 48 sessions 3 hr 4 times weekly Mondays Tuesdays Thursdays Fridays	Unknown
Radiology of the Chest (PM31)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	SC	Lec	10½	10/1/56 3/18/57	10/9/56	C 7 days	50
Clinical Use of Radioactive Isotopes (PM 41)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	S	SCI	Lab Lec	102	10/8/56	5/27/57	I 34 sessions 3 hr weekly Mondays	250
Differential Diagnosis in Radiology of the Chest (PM 34)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	SCI	Pt Dem LC	15	10/15/56 4/1/57	12/17/56	I 10 sessions 1½ hr weekly Mondays	50
Roentgen Diagnosis of Lesions of the Gastrointestinal tract (PM 32)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	SC	Lec	10	3/4/57	3/15/57	C 10 days	50
Radium Therapy (PM 33)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	S	SCI	Lec	14	4/30/57	6/11/57	I 7 sessions 2 hr weekly Tuesdays	50
Clinical use of Radioactive Isotopes (PM 40)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	S	SC	Lab Lec	140	6/3/57	6/28/57	C 20 days	250
Radiology (PM 51)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	S	MT	Lab, LC Lec EPP	Unknown			Specially arranged 6 or 12 mo	300 for 6 mo 600 for 12 mo
Advanced Diagnostic Roentgenology and Radiotherapy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem Lec AV	480	10/1/56 4/1/57	Unknown	C 72 days	300
Diagnostic Roentgenology and Radiation Therapy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SO	Pt Dem LC, Lec AV	1920	10/1/56 4/1/57	9/30/57	C 288 days	1000
Roentgen Interpretation	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Lec	480	10/1/56 4/1/57	12/31/56	C 72 days	300
Advanced Course in Radiotherapy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem Lec	40	Arranged		C 24 days	100
Practical Course in Superficial and Deep X Ray Therapy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SC	Pt Dem LC, WR Lec, AV	40	Arranged		C 24 days	100
651 A Diagnostic Radiology for General Practitioners	New York University Post Graduate Medical School 550 First Ave New York	G	SCI	Lec	64	9/26/56	5/1/57	I 32 sessions 2 hr weekly, Wednesdays	125
655-A Clinical Radiation Therapy	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Sem Lec	36	10/3/56	1/30/57	I 18 sessions 2 hr weekly Wednesdays	Unknown
654 A Radiobiology	New York University Post Graduate Medical School 550 First Ave New York	S	SCI	Sem Lec	30	2/4/57	5/27/57	I 20 sessions 1½ hr weekly Mondays	75
Instructional Courses	The Radiological Society of North American Inc 713 E Genesee St Syracuse N Y course at Palmer House Chicago	S	SC	Lab Lec Pan, AV	68	12/2/56	12/7/56	C 5 days	15
Radiological Health—Basic Course	Robert A Taft Sanitary Engineering Center 4676 Columbia Parkway Cincinnati 26	G	SO	Lab Lec AV	60	10/15/56	10/26/56	C 10 days	Nil
Physics of Radiology	Frank E Bunts Educational Institute 2020 E 93rd St Cleveland 6	S	SCI	Sem Lec O AV	25	1/3/57	4/[illegible]	I 17 sessions 1½ hr weekly Thursdays	25

Radiological Physics	Western Reserve University School of Medicine 2109 Adelbert Road Cleveland 6	S	MI	Lec O W	24	3/ 1/57	6/30/57	4 mo	25
Basic Course in Techniques of Using Radioisotopes	Oak Ridge Institute of Nuclear Studies Box 117 Oak Ridge Tenn	S	SC	Lab Sem Lec	96	9/ 3/56 10/22/56 1/ 7/57 2/ 4/57	9/28/56	C 4 weeks	25
Radiological Physics	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston Texas	G	SCI	Lec	24	10/56	4/57	I 24 sessions 1 hr weekly Thursdays	10
Radiotherapy	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	SCI	Lec	13	2/57	5/57	I 13 sessions 1 hr weekly Mondays	25
Radiology	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston 25 Texas	G	BC	Lec	14	4/57	4/57	O 2 days	20
Interpretation of X ray Films	University of Texas Postgraduate School of Medicine San Antonio Tex course at Robert B Green Memorial Hospital San Antonio Tex	G	SCI	Pt Dem Lec O	42	9/12/56	7/ 1/57	I 42 sessions 1 hr weekly Wednesdays	1/hr

SURGERY
(See also Malignant Disease and Anatomy)

Recent Advances in Surgery of the Lungs and Heart	City of Hope Medical Center 1500 E Duarte Rd Duarte Calif	G	BC	Pt Dem Lec Pan O	21	3/25/57	3/27/57	O 3 days	25
Traumatic and Minor Orthopedic Surgery	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan	37½	10/ 2/56	1/10/57	I 25 sessions 1½ hr twice weekly Tuesdays Thursdays	75
Surgical Physiology	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan	64	10/ 4/56	6/ 6/57	I 32 sessions 2 hr weekly Thursdays	75
Operative Surgery	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Cad Sur	30	3/20/57	6/ 5/57	I 12 sessions 2½ hr weekly Wednesdays	200
Thoracic Surgery	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	BCI	Lec Pan	8	4/24/57	5/15/57	I 4 sessions 2 hr weekly Wednesdays	30
873—Cardiac Resuscitation	University of Southern California School of Medicine Postgraduate Division Medical Research Bldg 895 Zonal Ave Los Angeles 33	B	BC	TC Lec EPP	2	Continuous		O 1 day weekly Wednesdays	30
A Series of Post Graduate Surgical Programs	U S Veterans Administration Hospital (Fort Miley) 42nd Ave and Clement St San Francisco	G	SCI	Lab Pt Dem TC Sem Lec Pan	12	9/56		I 6 sessions 2 hr weekly Tuesdays	Unknown
Symposium on Trauma	University of California Medical Center Second and Parnassus Aves San Francisco	G	BC	Pan	11	9/20/56	9/30/56	O 2 days	10
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General, Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12 D C	B	BC	Sem Lec Pan O	24	4/ 1/57	4/ 3/57	O 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General, Education and Training Division Washington 25 D C course at William Beaumont Army Hospital Ft Bliss Tex	B	BC	Sem Lec Pan O	24	4/ 1/57	4/ 3/57	O 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General, Education and Training Division Washington 25 D C course at Madigan Army Hospital Tacoma Wash	B	BC	Sem Lec Pan O	24	4/ 1/57	4/ 3/57	O 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Valley Forge Army Hospital Phoenixville Pa	B	BC	Sem Lec Pan O	24	4/ 1/57	4/ 3/57	O 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General, Education and Training Division Washington 25 D C course at Tripler Army Hospital Honolulu T H	B	BC	Sem Lec Pan O	24	4/ 1/57	4/ 3/57	O 3 days	Nil

Key will be found on page 1278

SURGERY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Fitzsimons Army Hospital Denver	B	BC	Sem Lec, Pan O	24	4/ 1/57	4/ 3/57	C, 3 days	Nil
Surgery in Acute Trauma	Department of the Army Office of the Surgeon General Education and Training Division Washington 25 D C course at Letterman Army Hospital San Francisco	B	BC	Sem Lec Pan O	24	4/ 1/57	4/ 3/57	C, 3 days	Nil
Professor Pro Tempore Surgery	Mt Sinai Hospital of Greater Miami 4300 Alton Rd Miami Beach Fla	S	SC	Lab Pt Dem LC WR Sur Sem Lec Pan O, AV	44	3/57	3/57	C 6 days	Nil
Pre and Postoperative Care	American College of Surgeons 40 E Erie St Chicago Clinical Congress at San Francisco	S	BC	Sem Lec Pan O AV	12	10/ 8/56	10/11/56	C 4 days	5
Gastrointestinal Tract									
Diseases of the Liver Biliary Tract and Pancreas									
Cardiovascular Surgery									
Thoracic Surgery									
James B Herrick Memorial Lecture	Chicago Heart Association 69 W Washington St Chicago course at Palmer House Chicago	G	BC	Lec O AV	2	2/12/57	2/12/57	C 1 day	Nil
General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem LC WR Sur Lec, O	70	9/10/56 11/ 5/56 5/ 6/57	9/22/56	C 12 days	250
Surgery of the Colon and Rectum	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC Sur, Lec, O	35	9/17/56 10/15/56 11/26/56 3/ 4/57 4/ 1/57 5/ 6/57 6/10/57	9/21/56	C 5 days	125
Course I Surgical Technic	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab, LC Sur, Lec O, AV	90	9/17/56 10/29/56 11/26/56 12/10/56 1/28/57 2/11/57 2/25/57 3/25/57 4/ 8/57 4/29/57 5/13/57 6/ 3/57 7/15/57 8/19/57	9/29/56	C, 12 days	250
Surgical Technic with Practice	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Sur Lec O	50	9/19/56 2/ 6/57	11/21/56	I 10 sessions 5 hr weekly Wednesdays	250
Diseases of the Breast	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Lab Pt Dem LC WR Sur, Lec O	30	9/19/56 3/20/57	11/21/56	I 10 sessions 3 hr weekly Wednesdays	150
Clinical Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SCI	Pt Dem Sur Lec O, AV	30	9/19/56 3/20/57	11/21/56	I 10 sessions 3 hr weekly Wednesdays	150
Esophageal Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab LC Sur Lec O AV	25	9/24/56 6/17/57	9/28/56	C 5 days	150
Thoracic Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC Sur Lec, O	30	10/ 1/56 6/10/57	10/ 6/56	C 6 days	125
Surgical Anatomy on the Cadaver and Clinical Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sur Lec, O AV	100	10/ 1/56 3/11/56 6/17/57	10/13/56	C 12 days	150
Surgical Pathology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Sem Lec O AV EPP	96	10/10/56 In 1957 by appointment	11/ 7/56	C 24 days	250
Annual Postgraduate Course of the International College of Surgeons	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sur Lec O AV	90	10/15/56	10/27/56	C 12 days	150
Breast and Thyroid Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR Sur Lec O	34	10/22/56 6/17/57	10/27/56	C 6 days	150
General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Pt Dem Sur Lec O AV	25	10/22/56	10/26/56	C 5 days	150

Gallbladder Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	BO	Pt Dem IO Sur Lec O AV	10	10/29/56	10/31/56	C 3 days	100
Intensive Review Course Considering Basic Principles in General Surgery	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Sem Lec O	85	11/ 5/56 4/ 8/57	11/17/56	C 12 days	200
Surgical Technic with Practice	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SOI	Lab Sur Lec O	25	11/28/56 1/17/57	12/26/56	I 5 sessions 5 hr weekly Wednesdays	125
Surgical Pathology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SO	Lab Sem Lec O AV FPP	18	Arranged		C 12 days	150
Surgery—Operative Clinics	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Kans	B	BOI	Pt Dem Sur Sem O AV	28	11/15/56	3/21/57	I 4 sessions 7 hr monthly except January Thursdays	50
Surgery	University of Kansas Medical Center 39th and Rainbow Blvd Kansas City Kans	B	BO	Pt Dem IO WR Sur Lec Pan O AV	28	1/21/57	1/24/57	C 4 days	60
General Surgery 1	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	G	SO	Pt Dem IO WR Lec O	160	10/15/56 5/20/57	11/ 9/56	C 23 days	250
General Surgery 2	Harvard Medical School Courses for Graduates 25 Shattuck St Boston course at Massachusetts General Hospital Boston	S	SO	Pt Dem IO WR Sem Lec	Variable	Arranged	Arranged	C by arrangement	300
Clinical Exercises for Practitioners	University of Michigan Medical School Dept of Postgraduate Medicine University Hospital Ann Arbor Michigan	G	SOI	IO WR Lec O	50	10/10/56	12/11/56	I 10 sessions 5 hr weekly Wednesdays	25
Emergency Surgery for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BO	Lec O	15	1/31/57	2/ 2/57	C 3 days	30
Surgery	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	S	BO	Lec O	15	5/23/57	5/25/57	C 3 days	30
Cardiac Resuscitation	St Michael's Hospital 306 High St Newark N J	S	BOI	Lab Sur Lec O, AV FPP	72	10/20/56	6/ 8/57	I 9 sessions 8 hr once monthly Saturdays	25
Recent Advances in Surgery Including Surgical Specialties	Albany Medical College 47 New Scotland Ave Albany N Y	G	BO	WR Sem Lec Pan	15	11/15/56	11/17/56	C 2½ days	25
Surgical Clinical Seminar	Albany Medical College 47 New Scotland Ave Albany N Y	G	BO	Sem Lec Pan	6	11/15/56	11/15/56	C 1 day	10
Office Surgery	Joint Committee on Post Graduate Education 1313 Bedford Ave Brooklyn 16, N Y, course at St John's Episcopal Hospital Brooklyn N Y	G	SOI	IO Lec AV	12	10/56	11/15	I 8 sessions 1½ hr weekly Tuesdays	20
Peripheral Vascular Surgery (PM 65A)	Montefiore Hospital 210th St & Bainbridge Ave New York	G	SOI	Lec AV	57	11/14/56	3/20/57	I 10 sessions 3 hr weekly Wednesdays	150
Minor Surgery (PM 31)	Mount Sinai Hospital Fifth Ave and 100th St New York 29	G	BO	Pt Dem Pan O	19½	10/29/56 1/ 7/57	10/31/56	C 3 days	75
Clinical and Operative (Cadaver) Surgery	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SO	Lab Pt Dem IO WR Sur, Sem Lec Cad O FPP	164	10/ 1/56 4/ 1/57	10/31/56	C 21 days	300
Combined Surgical Course Including Cadaver Surgery & Gynecology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SO	Lab, Pt Dem IO WR Sur Sem Lec O AV Cad FPP	120	10/ 1/56 4/ 1/57	11/30/56	C 18 days	350
Clinical Surgery	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SO	Lab Pt Dem IO WR Sur Sem Lec, O AV	144	10/ 1/56 4/ 1/57	10/31/56	C 21 days	100
Vascular Surgery	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SOI	Lab Pt. Dem IO WR Sur, Sem Lec O AV	16	Arranged		I 8 sessions 2 hr weekly Thursdays	
Thoracic Surgery	New York Polyclinic School and Hospital 345 W 50th St New York	G	SOI	Lab Pt Dem IO WR Sur Sem Lec O, AV Cad	12	Arranged		I 6 sessions 2 hr 3 times wk Mondays Wednesdays Fridays	200
Surgical Anatomy	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SOI	Lab Sur, Sem Lec O AV FPP	12	Arranged October and April of each year		I 6 sessions 2 hr 3 times wk Mondays, Wednesdays Fridays	300
933 A Recent Advances in Surgery	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem IO Sem Lec Lab O AV	88	9/10/56	9/22/56	C 12 days	300
541 A The Intervertebral Disc	New York University Post Graduate Medical School 550 First Ave New York	S	SO	Pt Dem Lec	35	10/ 1/56	10/ 5/56	C 5 days	90
773 A Acute and Neurological Problems in General Practice	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem IO Lec	30	10/15/56 4/29/57	10/20/56	C 6½ days	125

Key will be found on page 1278

SURGERY—Continued

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
661 A Review of General Surgery (For Specialists)	New York University Post Graduate Medical School, 550 First Ave, New York	S	SC	Lab Pt Dem Sem Lec Pan, O, AV	176	10/15/56	11/10/56	C 24 days	300
6612 A Cardiac Arrest and Resuscitation	New York University Post Graduate Medical School, 550 First Ave, New York	S	BC	Lab Sur Sem Lec Pan, O, AV	8½	11/12/56	11/12/56	C 1 day	50
664 A Trauma (Excluding Fractures)	New York University Post Graduate Medical School 550 First Ave New York	S	SC	Lab Lec O	39	11/26/56	12/1/56	C 5½ days	125
666-A Diagnosis and Treatment of Trauma	New York University Post Graduate Medical School, 550 First Ave, New York	G	SC	Pt Dem Lec	42	12/3/56	12/8/56	C 6 days	100
552 A Diagnosis and Treatment of Peripheral Nerve Injuries	New York University Post Graduate Medical School 550 First Ave, New York	G	SC	Pt Dem LC Lec	35	1/14/57	1/18/57	C 5 days	90
660-A Physiological and Pharmacological Principles Underlying the Surgical Management of Diseases of and Pertaining to the Para Sympathetic and Sympathetic Nervous System	New York University Post Graduate Medical School, 550 First Ave, New York	S	SC	Lab Pt Dem LC Sem, Lec, Pan, O, AV	44	1/14/57	1/19/57	C, 5½ days	150
667 A Surgery of the Hand	New York University Post Graduate Medical School 550 First Ave New York	G	SO	Pt Dem Cad Lec	42	3/18/57	3/23/57	C 6 days	100
Regional Anatomy & Cadaver Surgery in the Field of Otolaryngology	University of Cincinnati College of Medicine Eden and Bethesda Aves, Cincinnati 19	S	SC	Lab Pt Dem Sur Sem Lec O AV EPP	45	4/15/57	4/20/57	C 5½ days	150
General Surgery	University of Oregon Medical School 3181 S W Sam Jackson Rd Portland	G	SC	Pt Dem LC WR Sur Lec O Pan	35	10/22/56	10/26/56	C, 5 days	50
Bronchology, Esophagology and Laryngeal Surgery	Graduate School of Medicine University of Pennsylvania Philadelphia	S	SC	Sur Lec Pan, AV	60	6/6/57	6/17/57	C 10 days	250
Surgical Pathology and Pathologic Anatomy	The University of Texas Postgraduate School of Medicine Texas Medical Center Houston, Tex course at Scott and White Clinic Hospitals, Temple, Tex	G	MT	Lab, EPP	Unknown	Scheduled on request		12 days	25

UROLOGY

Title of Course	Location	Designed For	Type	Methods of Instruction	Total Hours	Starting Date	Ending Date	Time Arrangement	Fee
General Urology	College of Medical Evangelists 1720 Brooklyn Ave Los Angeles 33	G	SCI	Lec Pan	24	10/1/56	12/17/56	I 12 sessions 2 hr weekly Mondays	50
Los Angeles Urologic Research Convention	Director Los Angeles Urologic Research Convention 6253 Hollywood Blvd, Los Angeles, course at Ambassador Hotel, Los Angeles	S	SO	Pt Dem, LC Sem Lec Pan O AV	40	11/12/56	11/16/56	C days	65
Sterility	University of California School of Medicine Los Angeles 24	G	SCI	Lec Pan AV	15	2/21/57	3/21/57	I 5 sessions 3 hr weekly Thursdays	40
James C Kimbrough Urological Seminar	Department of the Army, Office of the Surgeon General, Education and Training Division Washington 25 D C course at Walter Reed Army Medical Center Washington 12, D C	B	BO	LC, Lec	24	9/19/56	9/21/56	C 3 days	Nil
Urology Postgraduate Course	State University of Iowa Medical School Iowa City	B	BC	Pt Dem Lec Pan O AV	6	9/12/56	9/12/56	C 1 day	15
Urology	Cook County Graduate School of Medicine 707 S Wood St Chicago 12	G	SC	Lab Pt Dem LC WR, Sur Lec, O AV	80	10/8/56	10/20/56	C 12 days	225
Urology for General Physicians	Continuation Medical Education 1342 Mayo Memorial University of Minnesota Minneapolis 14	G	BC	Lec O	15	1/3/57	1/5/57	C 3 days	30
Instrumental Urology	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SCI	Lab Pt Dem LC WR Lec AV	24	Arranged		I 12 sessions 3 hr 3 times a wk Tuesdays Wednesdays Saturdays	100
Urological Surgery	New York Polyclinic Medical School and Hospital 345 W 50th St New York	G	SOI	Pt Dem LC WR Sur Lec O AV	80	Arranged		I 48 sessions 2 hr 3 times a wk Mondays Wednesdays Fridays	150
671 A Refresher Course in Basic Urology	New York University Post Graduate School of Medicine 550 First Ave New York	G	SC	Lab Pt Dem Cad Lec	35	1/14/57	1/18/57	C 5 days	75
671 A Advanced Course in Urology	New York University Post Graduate School of Medicine 550 First Ave New York	S	SC	Lab Pt Dem LC AV	70	5/13/57	5/24/57	C 10 days	175
Diagnosis and Treatment of Common Urological Disorders	University of Texas Postgraduate School of Medicine San Antonio Tex course at Robert B Green Memorial Hospital San Antonio Tex	G	SCI	Pt Dem Lec O	8	11/7/56	11/28/56	I 4 sessions 2 hr weekly Wednesdays	10

Key will be found on page 1278.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Functional Evaluation of Mitral Valvulotomy Superiority of the Treadmill Exercise Tolerance Test to Clinical and Resting Hemodynamic Evaluations in Selecting Patients R A Bruce K. A Merendino, J J Pampush and others Am J Med 20 745-755 (May) 1956 [New York]

Clinical and laboratory examinations were made before and after mitral valvulotomy in 52 patients between the ages of 19 and 65 years, 49 of whom had been operated on for relief of disabling mitral stenosis The patients were followed up postoperatively for 1 to 36 months The functional capacity of each patient was evaluated according to the criteria of the New York Heart Association Each patient was subjected to fluoroscopy with careful recording of the enlargement of the heart chambers, pulmonary engorgement and mitral valve calcification Laboratory tests included electrocardiography, phonocardiography, determinations of vital capacity, circulation time venous pressure and arterial oxygen saturation while patients were breathing both air and oxygen Cardiac catheterization was performed in the usual manner Quantitative exercise-tolerance tests were done on a treadmill ergometer operated at 1 7 mph on a 10% grade for 10 minutes Exercise tolerance was expressed objectively in terms of the physical fitness index representing the ratio of efficiency of oxygen utilization during effort to rapidity of circulatory recovery with normal values ranging from 13 to 26

Of the 52 patients 29 were improved postoperatively 15 were unchanged 3 were worse and 5 died Analysis of the salient factors that may affect prognosis of valvulotomy revealed that the standard exercise tolerance test affords more assistance than the usual clinical or hemodynamic criteria based on examinations at rest of patients with mitral stenosis Patients with predominant mitral stenosis are more likely to benefit from mitral valvulotomy if despite intensive and prolonged medical treatment, they exhibit dyspnea, fatigue on exertion and disability due to pulmonary vascular engorgement and objectively show impaired endurance fall in systolic pressure, and only a slight reduction in respiratory efficiency during effort If the physical fitness index is between 3 and 6, the need for surgery is definite the risk of operative mortality due to inadequate cardiac reserve is minimal and the chances of benefit are maximal Further observations will be required to determine whether or not the slight decline in physical fitness index observed in patients followed up for three years represents evidence of recurrent stenosis of the mitral valve

Chronic Progressive (Cavitary) Histoplasmosis as a Problem in Tuberculosis Sanatoriums M L Furcolow and C A Brasher Am Rev Tuberc 73 609-619 (May) 1956 [New York]

Chronic progressive histoplasmosis, in contrast to the acute progressive or disseminated form occurs primarily among older persons and is localized to the lungs except in the terminal stages Both forms of the disease are eventually fatal The early stage of the chronic form is characterized by apical or subapical pneumonic infiltrations that progress to multiple thick-walled usually bilateral cavities The progressive nature of the disease has been proved The descriptive term chronic progressive (cavitary) histoplasmosis is proposed to designate this type of disease The symptoms of this form of histoplasmosis are cough moderate weight loss usually a slight elevation of the sedimentation rate, occasional elevation of temperature profuse sputum and sometimes hemoptysis The disease is characterized by exacerbations The patient usually seeks medical help after an acute bout of what is called "influenza" at which time pneumonic or cavitary disease is found This bout may subside and the patient not be seen again until several years later at which time he has a similar episode and further extension is discovered The disease usually progresses to fatal termination and just before this occurs there is dissemination of the fungus throughout the body with enlargement of the liver and spleen Frequently at autopsy Histoplasma capsulatum may be cultured from all organs of the body In this type of disease the sputum is usually loaded with H capsulatum and positive cultures are readily obtained Serologic tests are usually positive and serve as a good screening tool Tubercle bacilli are occasionally found, but most of the cases are not complicated by tuberculosis

Whereas only 16 cases of chronic progressive cavitary histoplasmosis have been reported previously on the basis of studies the authors carried out at the Missouri State Sanatorium at Mount Vernon Mo it can be concluded that this type of disease occurs frequently among patients in a tuberculosis sanatorium The frequency of "mycologically proved cavitary cases was 2.4% among the 600 patients in the tuberculosis sanatorium and the frequency of the "serologically proved" cavitary cases was 4 8% The implications of these findings may be seen by applying them to the 16 500 tuberculosis beds in the area of high histoplasmin sensitivity If similar findings prevailed in the other sanatoriums 1,200 cases of chronic progressive cavitary histoplasmosis might be expected to be found in these sanatoriums That these estimates are fairly correct has been confirmed by Sutliff and Campbell who obtained positive serologic tests for histoplasmosis in 7 3% of 150 tuberculous patients in Memphis Tenn Patients with chronic progressive histoplasmosis not only occupy beds intended for tuberculous patients but they derive no benefit from antituberculosis therapy and indeed, may contract tuberculosis Furthermore the demonstration of more cases of histoplasmosis should furnish an adequate pool of cases for trials of therapeutic agents so urgently needed in this fungal infection

Nonspecific Mesenteric Adenitis M J T FitzGerald Irish J M Sc 6 205-228 (May) 1956 [Dublin Ireland]

Nonspecific mesenteric adenitis occurred in 109 (0 87%) of 9 495 patients admitted to hospital for observation Ninety nine of the 109 patients were between the ages of 5 and 20 years Sixty (55%) were male and 49 (45%) were female There was a typical history of abdominal colic of varying severity referred to the umbilical region or right lower abdominal quadrant The temperature was raised in 54 patients the face showed a malar flush with or without circumoral pallor in 43 the tongue was coated in 76 tenderness was present in 90 shifting tenderness (Klein s sign) was observed in 12 lymph nodes were palpated through the abdominal wall in 35 and 61 (56%) gave a history of upper respiratory infection within one month of the present illness as compared with 25% of 100 control patients who had illnesses that had no relationship to upper respiratory infection Appendectomies were performed in 70 patients and in more than one-third of these the removed appendix showed evidence of active inflammation Throat swabs from 50 patients incubated on blood agar revealed only the normal flora Nonspecific mesenteric adenitis occurs with much greater frequency than is generally realized It is the commonest cause of recurrent abdominal pains in childhood and adolescence It is a clinical entity and can be diagnosed with confidence in most cases Emphasis is to be placed on the typical history, the appearance of the face and general condition of the patient migration of pain and tenderness and the palpation of enlarged lymph nodes

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library American Medical Association " Periodical files cover 1947 to date only and no photoduplication services are available No charge is made to members but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them through the abdominal wall There is no laboratory aid to diagnosis When delay is not justified in a patient suspected to have acute appendicitis, operation is indicated The complaint is self-limiting, and the value of conservative as opposed to radical treatment is difficult to assess Upper respiratory tract infection is a significant predisposing factor Infection with streptococcus hemolyticus is of no importance in the causation of the disease Circumstantial evidence points to a virus as a possible causative agent

Further Observations on the Treatment of Leptospirosis R L Doherty *Australasian Ann Med* 5 23-31 (Feb) 1956 [Sydney, Australia]

In 1955 it had been pointed out by the author that the clinical findings in 115 patients with leptospirosis observed in North Queensland were mild in comparison with those of previous Australian series The contrast in mortality, in the number of patients jaundiced, and in the duration of fever was so striking that it seemed probable that the antibiotics given to most patients had modified the course of their disease The author has since studied a further series of 158 patients with leptospirosis, giving him a total group of 273 patients The list of the serotypes represented shows that the australis A and the australis B types were most frequent, being present in 88 and 69 patients respectively The clinical course was uncomplicated in 266 of the patients, two became uremic, and one of these also became grossly jaundiced, in this patient and four others, iritis, cyclitis, or iridocyclitis developed in convalescence, one patient had leptospiral meningitis The two patients who became uremic received no antibiotic during the initial febrile period of their illness Analysis of 85 patients with australis A or the closely related "Esposito" infection and of 68 with australis B infection showed that, for each serotype, the total duration of fever and the duration of fever after treatment were less in patients given intermediate or large doses of penicillin than in those given small doses Twenty-six patients received one of the broad-spectrum antibiotics, analysis suggested that the response was inferior to that from large doses of penicillin There was no evidence that increasing the dose of penicillin above 2,400,000 units per day improves the results in australis A infections This may be suggested as a suitable dose for future treatment It remains to be seen whether dosage of this magnitude will lower the mortality in series from areas where the leptospiroses are less common than in North Queensland and are therefore diagnosed at a later stage of illness

Fever of Unknown Origin II A Discussion Around Four Typical Cases L E Bottiger Acta med scandinav 154 215-223 (No 3) 1956 (In English) [Stockholm, Sweden]

Four typical cases of fever of unknown origin are described The first patient, a 77-year-old man with a relatively recent history of pleurisy of unknown cause, was admitted to the hospital because of fever and pain in his hip Active pulmonary lesions were not observed, and tubercle bacilli were not found in his gastric contents He did not respond to a short trial with antituberculous drugs Accordingly, he was not believed to have tuberculous arthritis and was treated with large doses of antibiotics and later with cortisone He died after four months in the hospital, and autopsy showed tuberculous arthritis of the hip and a recent miliary tuberculosis Roentgenograms of the hip were normal up to five months after the onset of the symptoms The second patient, a 16-year-old boy who had bouts of spiking fever, arthralgia, and skin rash recurring several times within 18 months, was considered to have systemic lupus erythematosus He finally was treated with erythromycin, and because he made a striking response a diagnosis of micrococcic (staphylococcic) septicemia, supported by the finding of a sparse growth of Micrococcus pyogenes var albus on one blood culture and a rising antistaphylolysin titer, was made No focus, however, could be found, and the possibility remained that the bacteria might have entered through a seemingly simple throat infection The third patient, a 77-year-old man, had peaks of intermittent fever of unknown origin that for several months were accompanied by swelling around the eyes Painful, red, swollen areas gradually developed over several peripheral muscles A diagnosis of dermatomyositis was made and confirmed by biopsy Cortisone treatment gave an excellent result The fourth patient, a 34-year-old woman, was admitted to the hospital because of fever of a septic type associated with a slightly enlarged liver and a leukocytosis of 35,000 as the only positive findings A septic infection was suspected, and she was treated accordingly, but she did not respond to any treatment A tentative diagnosis of Hodgkin's disease was finally made, which could be confirmed only at autopsy

Tuberculosis, malignant tumors, nonspecific infections, and collagen diseases are among the diseases most commonly diagnosed as fever of unknown origin A complete x-ray examination of the internal organs, a sternal marrow examination, and, if feasible, a lymph node biopsy are essential in all cases of long-standing unexplained fever Tuberculosis should not be considered as a disease of the past, but should be considered in any patient with fever of unknown origin, especially in a middle-aged patient with long-standing fever In cases of obscure fever every effort should be made to establish a diagnosis before the indiscriminate use of antibiotics, which is responsible for the fact that fever, a physiological state, has regained the status of a disease entity It is wise always to suspect collagen disease as the cause of an unexplained fever, especially in young adults when the fever is intermittent and accompanied by musculoskeletal and cutaneous symptoms The abdominal variety of Hodgkin's disease should be remembered when all other examinations are negative

Contribution to Problem of Renal Diabetes H Steigerwald and F Gorlitz Medizinische No 16, pp 609-614 (April 21) 1956 (In German) [Stuttgart, Germany]

The maximal glucose reabsorption capacity of the tubules and the "kidney threshold" were determined with the aid of Smith's glucose saturation method in two men, aged 24 and 20 years, with renal glycosuria The maximal glucose reabsorption capacity of the tubules was reduced in both patients, values of 250 mg and 252 mg per minute were determined as compared to normal values of 375 mg per minute The kidney threshold of 88 mg per 100 ml in one patient was much lower than in normal persons, and that of 167 mg per 100 ml in the other patient was only slightly lower than in normal persons These deviations from the norm are expressions of changes in the "glomerular activity" of the nephrons, i e, of the ratio of glomerular glucose filtration to tubular glucose reabsorption in one nephron Two varieties of glomerular activity of the nephrons were observed among the authors' patients One group of patients showed reduced glomerular activity, and the other group showed increased activity Increased activity may be considered as the cause of renal glycosuria in patients with normal blood sugar level The changes in glomerular activity depend on the anatomic changes of the proximal segments of the tubules, which have been described by Monasterio Enzymatic hypofunction in the tubules may play an additional part This was suggested by the increase in the kidney threshold from 88 to 166 mg per 100 ml and in the maximal glucose reabsorption capacity of the tubules from 252 to 326 mg per minute that occurred in the authors patients after the administration of riboflavin

Preliminary Experiences with Peroral Treatment of Diabetes Mellitus with the Sulfonamide Compound 'Nadisan" M Broglie, G Voss, E-G Berg and O Ruhling Medizinische, No 17, pp 656-659 (April 28) 1956 (In German) [Stuttgart, Germany]

Of 50 patients with diabetes mellitus to whom carbutamide (BZ-55) was given, 35 were followed up for a time sufficiently long to evaluate the results Twenty-two showed a good response to the drug, a success ratio of 60% This ratio is somewhat smaller than that reported by other workers, but may be explained by the fact that infants with diabetes were among the authors' patients Until results on a larger scale become available, the following recommendations seem to be justified 1 Stabilization of the diabetes with carbutamide, change of treatment from that with insulin to that with carbutamide should be carried out only by physicians with experience in the treatment of diabetes Both stabilization and change of treatment should be carried out in the hospital only. A preliminary period of observation before the institution of carbutamide therapy is desirable, and an attempt should be made to discontinue the administration of the drug temporarily, since results obtained showed that some of the patients with good response to carbutamide were able to maintain for many weeks without further administration of tablets the effect obtained from an 8-to-10-day course. 2. Ambulatory treatment with carbutamide may be justified only in exceptional cases, i.e. in intelligent patients of adipose-sthenic type with good discipline, aged over 55 years, with mild or moderate diabetes for which they are to be treated for the first time. Control examinations for which suitable laboratory facilities are available and which in the beginning should be carried out daily are indispensable. 3. Ambulatory treatment is strictly contraindicated in children, adolescents, and other labile patients with a tendency to acidosis. 4. All patients with diabetes whose conditions have been stabilized with carbutamide should be cautioned that febrile infections and other stresses are associated with great risk. In such cases the patient must immediately place himself under supervision by a specialist, preferably in a hospital, since additional treatment with insulin may become necessary. 5. Usual dietary measures remain indispensable with carbutamide therapy. When these recommendations are carefully observed, the new method may bring about great improvement in the therapy of diabetes, provided that late impairment can be definitely excluded. Late impairment should be watched for carefully.

Further Experiences with the Determination of Insulin in the Blood Serum with the Isolated Rat Diaphragm. A F Willebrands and J Groen. Nederl tijdschr geneesk 100 817-823 (March 24) 1956 (In Dutch) [Haarlem, Netherlands]

The authors review the history of a method for in vitro assay of insulin in the blood serum. The method is based on Gemmill's observation in 1940 that when an isolated rat diaphragm is incubated with a buffered solution that contains glucose, the metabolism of the tissue is maintained, in that glucose disappears from the medium and glycogen is formed. Gemmill also found that the consumption of glucose is stimulated by the addition of insulin to the medium. On the basis of Gemmill's observations the present authors in collaboration with Kamminga and Blickman demonstrated in 1950 that insulin could be found in the blood serum with the aid of the isolated rat diaphragm. In this paper the authors report additional studies on this test method describing the preparation of the rat diaphragms, and tests with the blood serum of healthy persons, of patients with diabetes mellitus, of patients with hyperinsulinism, and of patients with acromegaly. They concluded that the technique for the demonstration of insulin in vitro by its action on the glucose utilization of the isolated rat diaphragm can be used for a quantitative determination of the amount of insulin in blood serum. The process is laborious and only a fairly rough estimate is possible. The figures given by different investigators for the normal insulin content of blood differ greatly. The method is not yet sensitive enough for the study of small variations in the secretion of insulin, but it has been found useful for the detection of very high or very low serum insulin concentrations in some pathological conditions.

Cardiospasm: Favorable Results with Anticholinergic Medication. M J Matzner and C Windwer. Am J Gastroenterol 25 454-462 (May) 1956 [New York]

Cardiospasm is generally regarded as a failure of the cardiac orifice to relax. It probably ranks next in frequency to carcinoma as a cause of esophageal obstruction. It may occur in childhood or old age but is most common in middle life. Patients with this condition frequently have a history of emotional upsets. The authors point out that the concept that cardiospasm is a local nervous disturbance of a cardia has been weakened. Studies have demonstrated a generalized disturbance of the entire esophagus characterized by an abnormal esophageal motility pattern and specific hypersensitive response to the parasympathomimetic drug acetyl-beta methylcholine chloride (Mecholyl), with resultant esophageal spasm. The earliest and most constant symptom is dysphagia. Pain is relatively infrequent. Roentgenological examination is the most important procedure in excluding the presence of some other obstructive process. The roentgen diagnosis rests on the demonstration of a smooth, tapering, centrically placed stenosis at or near the cardia with dilatation proximally. While esophagoscopy is of limited diagnostic value, some believe that it should be used to exclude carcinoma or peptic ulcer.

Treatment may be medical, mechanical, or surgical. The authors believed that medical measures deserved further investigation, particularly since the recently observed hypersensitivity to Mecholyl suggested the investigation of anticholinergic medication. They present observations on eight patients with cardiospasm who were treated medically with anticholinergics in the form of oxyphenonium bromide (Antrenyl) as an adjuvant measure. The patients were told to avoid emotional stress, hot and cold foods, and to adhere to a bland, soft diet. From 5 to 10 mg. of oxyphenonium bromide was given 30 minutes before meals. Marked subjective improvement occurred. No significant change in the diameter of the esophagus was noted. Although there was an observable delay of the barium meal at the cardioesophageal region during fluoroscopy, these patients stated that they were relieved of their previous dysphagia. The authors emphasize that anticholinergic medication should be used not as a sole but rather as an adjuvant measure in the medical management of cardiospasm.

Corrosive (Acid) Gastritis: Management of Early and Late Cases. F Steigmann and R A Dolehide. New England J Med 254 981-986 (May 24) 1956 [Boston]

Corrosive (acid) gastritis with its sequela of pyloric stenosis has received little attention in the American literature. Caustic alkalis cause liquefaction necrosis primarily in the oral and esophageal mucosa and have little if any effect, in most cases, on the gastric mucosa because of the neutralizing action of the stomach secretions. Acids, in contrast, are notorious for their coagulation necrosis of the gastric mucosa with acute and chronic sequelae. The acute symptoms may include hemorrhage, shock, and perforation with peritonitis. The late sequelae may be classified according to the amount of destruction and the resultant scar formation: pyloric stenosis, antral stenosis, hour-glass deformity, or, rarely, total gastric scarring resulting in a linitis plastica.

The four histories presented in this paper illustrate the adequate and inadequate management of corrosive gastritis. If the patient survives the first 24 hours, maceration and necrosis of the mucosa of the esophagus or stomach occur. This may result in severe mediastinitis after lye poisoning and in gastritis with upper abdominal peritonitis after acid poisoning. During this stage (a week or longer) the patient is still in danger. However, if the injury is not overwhelming, the patient usually responds to a supportive regimen of sedatives, antibiotics, blood transfusions, fluids (with attention to the electrolyte balance), antispasmodics, and various demulcents given by mouth. It is important not to use any large stomach tube for lavage when the patient is first seen after the ingestion of a corrosive agent because such a tube may increase the damage to the gastric or esophageal wall. However, weak emetics may be used or, preferably, only demulcents, such as egg white, milk, and olive oil. When the patient presents the symptoms of peritonitis with a tender, rigid, painful abdomen, the impulse to perform an emergency laparotomy must be resisted. Occasionally an erroneous diagnosis of peritonitis from a ruptured viscus is made because there is no history of intake of a corrosive substance. If the surgeon opens such an abdomen and finds a highly inflamed, almost gangrenous organ, he should perform only a jejunostomy and close the abdomen. If the damage is not too severe and the patient survives the first few days, nature as a rule will take care of the burned organ. The patient may thus remain asymptomatic for weeks or even months. Then, depending on the pathological changes that have occurred, he will present himself to the physician with one or more of the following symptoms: weight loss, anorexia, nausea, bloating, eructation, epigastric fulness, and vomiting. Whereas the treatment of the acute stage is supportive, i.e., medical, the treatment of the sequelae is surgical, i.e., pyloroplasty or gastroenterostomy, depending on the changes found at laparotomy. Subtotal gastric resection is rarely indicated.

Diagnosis of Islet Cell Tumours of the Pancreas J D C Kelly Lancet 1 668-670 (May 12) 1956 [London, England]

Until recently the diagnosis of islet-cell tumor depended on (1) a hypoglycemic attack resulting from fasting or exertion, (2) a blood sugar level below 50 mg per 100 ml during the attack, and (3) the prompt relief of an attack by glucose Assay of serum for insulin content offers a possibility for diagnosis Of the two main methods of plasma insulin assay the in vitro method, with the rat diaphragm, is considered easier and more satisfactory Other investigators obtained with this method fasting plasma insulin levels of 31 to 82 micro-units per milliliter in healthy persons With these figures indicating the range of normality, a diagnostic assay was made on the patient whose history is presented A 33-year-old man was hospitalized in a semiconscious state His wife stated that he was subject to fits, the last one having occurred four hours previously Examination revealed typical signs of a hypoglycemia, and the patient responded to the intravenous administration of a 50% dextrose solution He later stated that in the previous two years he had had intermittent blackouts, usually before the midday or the evening meal, and he related them to being tired or to going without food for some hours The premonitory symptoms included hunger, dizziness, and diplopia An attack could be averted by taking glucose tablets or food An islet-cell tumor of the pancreas was tentatively diagnosed, and the patient was admitted for further investigations A glucose-tolerance test suggested that glucose was rapidly removed from the circulation

The patient was starved on two occasions to induce an attack and to make a plasma insulin assay Typical hyperglycemia resulted that responded immediately to intravenous administration of dextrose The blood sugar level was 53 mg per 100 ml during the attack The plasma insulin assay showed that there were 300 micro-units per milliliter, compared with the normal value of 31 to 82 micro-units This made the diagnosis of an islet tumor of the pancreas definite The pancreas was explored, and a tumor was found and removed After operation the starvation test and plasma insulin assay were repeated, but no symptoms or signs of hypoglycemia appeared The blood sugar level remained more constant after removal of the tumor The plasma insulin level at the end of 19 hours was 50 micro-units per milliliter In the present case the blood sugar level during the attack of hypoglycemia did not fall below 50 mg per 100 ml, and thus one of the three criteria of Whipple and Frantz was not fulfilled, although an islet tumor was present Assay of the insulin content of the plasma confirmed the diagnosis

Tubeless Gastric Analysis in the Study of Acid Secretion Following Gastric Irradiation for Peptic Ulcer J T Galambos and J B Kirsner Gastroenterology 30 598-601 (April) 1956 [Baltimore]

The value of tubeless gastric analysis as an index of the changes in gastric secretion during treatment was investigated in 33 patients with peptic ulcer (duodenal, 30, esophageal, one, gastric, one, and jejunal, one) who were receiving gastric irradiation as a therapeutic adjunct The total amount of radiation was 1,600 r, administered in divided doses over a period of 10 days Conventional and tubeless gastric analyses were performed before and after the conclusion of the irradiation The patients were then kept under observation for periods ranging in length from one to eight months (13 patients, one to two months, 10, three to four months, and 10, five to eight months) Continuous excessive secretion of hydrochloric acid under basal conditions is one of the fundamental disturbances in duodenal ulcer, consequently, the unstimulated (basal) gastric secretion was used in making the measurements The tubeless gastric analyses were performed as close to the one-hour basal gastric aspirations as possible, in several patients, however, the intervals between the two tests were prolonged The correlation between basal gastric analysis and tubeless gastric analysis was considered positive (1) when, in the absence of hydrochloric acid, the reaction for quinine in the two-hour test urines was 0 (15mµ) and (2) when, with demonstrable hydrochloric acid in the basal secretion, the reaction for quinine in the test urine ranged between 1+ and 4+

A direct correlation was found between the results of the one-hour basal secretion and the tubeless gastric analysis in 24 patients, in 18, the initial disappearance of hydrochloric acid after roentgen therapy and its continued absence or subsequent return during the period of observation were correctly indicated, and in 6 others the results accurately reflected the persistence of free acid in the basal secretion A decrease in the tubeless gastric analysis reading to 0 was recorded in four patients, although the basal secretion, measured on a different day, showed small amounts of hydrochloric acid (15 to 35 mg) The discrepancy in these cases may have been due to the day-to-day variation in basal gastric secretion Lack of correlation between the two methods in another case was due only to the fact that the reading for the pretreatment tubeless gastric analysis, which could not be repeated, was 0, although hydrochloric acid was demonstrable in the gastric content Correlation between the results of the two tests in this patient after roentgen therapy was satisfactory Tests in the remaining four patients showed no correlation

These results seem to show that (1) conventional gastric analysis can be postponed as long as the tubeless gastric analysis remains consistently negative and the patient is free from symptoms and (2) tubeless gastric analysis provides a simple and useful index of the presence or absence of hydrochloric acid in the gastric content of patients with peptic ulcer receiving gastric irradiation as a therapeutic adjunct

Tubeless Estimation of Gastric Acidity C Bonessa and G Mars Minerva med 47 728-732 (March 14) 1956 (In Italian) [Turin, Italy]

The authors estimated the gastric acidity by giving patients an ion-exchange resin bound to quinine The quinine, in contact with the hydrochloric acid of the stomach, separates itself from the resin, joins the chloride ion, and forms quinine hydrochloride This is absorbed, goes into the circulation, and is eliminated with the urine When hydrochloric acid is not present in the stomach, the quinine and the resin remain unmodified and are excreted in the feces The search for quinine in the urine is then negative This test is given either on an empty stomach or after administration of caffeine or histamine parenterally The test was given to 108 patients, 24 to 89 years old The patients were divided into three groups 23 were normal, 41 had gastric disease, and 44 had other types of disease The gastric acidity had been previously measured by means of gastric intubation Results were similar in both tests

Protracted Jaundice F Steigmann, S Canahuati and W Dalessandro Am J Gastroenterol 25 441-453 (May) 1956 [New York]

In patients with protracted jaundice (lasting three months or longer) the diagnosis may prove difficult In order to facilitate the diagnosis in such patients, the authors classified 100 patients with protracted jaundice into four symptomatic groups and then into surgical and medical subgroups The diagnosis in these patients was confirmed by abdominal exploratory operation, punch biopsy of the liver, and autopsy Some patients who later came to autopsy had had a laparotomy or liver biopsy previously This series included 29 patients with malignant (complete) obstruction, 22 with benign (incomplete) obstruction, 23 with cirrhosis, and 26 with hepatitis Of the 55 patients of group 1, who had prolonged jaundice only, 31 (group 1A) had more or less constant jaundice and 24 (group 1B) had intermittent jaundice Of group 1A, 10 had medical and 21 had surgical cases, of group 1B, 16 had medical and 8 had surgical cases The 23 patients of group 2 had prolonged jaundice plus fever, the 7 patients of group 2A, in whom the jaundice was constant, included 2 with medical and 5 with surgical cases, the 16 patients of group 2B, in whom the jaundice was intermittent, included 6 with medical and 10 with surgical cases In the 18 patients of group 3, jaundice was complicated by ascites, the 9 of group 3A, in whom the jaundice was constant, included 3 with medical and 6 with surgical cases, the 9 of group 3B (remittent jaundice) included 8 with medical cases and one with a surgical case The four patients of group 4 had prolonged jaundice, ascites, and fever, two patients of this group, one with malignant obstruction and one with hepatitis, had constant jaundice, while two with cirrhosis had remittent jaundice

The data obtained indicate that in these patients, most of whom were observed in a charity hospital, there was an almost equal number with medical (hepatitis and cirrhosis) as surgical (malignant and benign obstructive) lesions and that these cases fall with almost equal frequency into each symptomatic group The age group, the racial strain, and the history may be of some differential diagnostic value The presence of abdominal masses or of a palpable gallbladder most often indicates a surgical condition but a palpable spleen and ascites do not always point to a medical jaundice The size of the liver or whether it is smooth or nodular is of little value in the diagnosis of protracted jaundice A history of jaundice of one year or longer is most often obtained in medical cases High levels of total cholesterol and alkaline phosphatase are usually indicative of a surgical condition, while medical jaundice is characterized by low albumin and high globulin levels and positive cephalin flocculation and thymol turbidity tests Some of the findings such as nausea fever, vomiting anorexia weakness pruritus jaundice splenomegaly ascites and cholesterol ester percentage which are of significance in patients with early jaundice are of little or no value in the differentiation of medical from surgical cases of protracted jaundice

Acute Barbiturate Poisoning—How Should It Be Treated J K Wilson J Pediat 48 693-697 (June) 1956 [St Louis]

A 4-year-old boy who was in coma when admitted to the hospital had taken an unknown amount of probarbital sodium elixir For the 36 hours preceding his admission he had received picrotoxin repeatedly pentylenetetrazol on several occasions and fluids intravenously alternating 5% dextrose in water and 5% dextrose in isotonic sodium chloride solution The intravenous fluids contained enough levarterenol bitartrate to maintain a fairly good blood pressure The child did not show any signs of improvement On admission a polyethylene tube was placed in an ankle vein and a tracheotomy was performed Before the patient was placed in a respirator his breath sounds seemed normal and there was no evidence of pulmonary edema atelectasis or other abnormality While in the respirator he was given 3 mg of picrotoxin intramuscularly and his rectal temperature was found to be 92 F Hot water bottles were applied for eight hours and his temperature rose to 96 F rectally Repeated injections of picrotoxin were given with no apparent effect Administration of picrotoxin and of stimulants was discontinued and for the next seven hours the patient was maintained on oxygen in the respirator and 100 cc. of low sodium human serum albumin was given intravenously A second unit of low serum albumin was to have been started when death occurred 15 hours after admission The author asks whether (1) analeptic drugs should be used in a child or adult with severe barbiturate poisoning (2) large doses of human serum albumin should be used (3) potassium chloride should be used routinely (4) oxygen should be used in severely depressed patients and (5) exchange transfusion should be used in the desperately ill, severely comatose patient with barbiturate poisoning

Editorial Comment on the Treatment of Acute Barbiturate Poisoning. J N Etteldorf and R A Woodbury J Pediat 48 698-704 (June) 1956 [St Louis]

The questions asked by Wilson (see preceding abstract) were answered by the authors in their editorial comment The medical literature on the treatment of poisoning caused by barbituric acid derivatives is highly confusing Wilson s case suggested that the child had suffered irreversible depression and damage to the central nervous system before treatment was instituted Consequently, no therapeutic regimen would be expected to be very satisfactory Pentylenetetrazol and picrotoxin are the preferred analeptics in the treatment of barbiturate intoxication because they increase the excitability of the brain stem They may be lifesaving but must be given in sufficient amounts to increase the activity of the respiratory and vasomotor centers in the medulla, thereby reducing or preventing the deleterious effects of hypoxia The initial dose of pentylenetetrazol ranges from 50 to 100 mg for children and from 500 to 750 mg for adults Picrotoxin should be given in doses of 0 2 or 0 3 mg per kilogram of body weight (15 to 25 mg in divided doses at 15-minute intervals for an adult and proportionately less for a child, usually 3 to 6 mg) Picrotoxin has a latent period of 10 to 15 minutes Failure to recognize this may result in giving an overdose and the appearance of convulsions Though it may be necessary to continue to give large doses of analeptics, they should never be pushed to the point of causing convulsions Analeptics are not necessary for maintaining respiratory exchange when one of the mechanical means for artificial respiration is available

A dose of 2 cc of human serum albumin per kilogram of body weight with a maximum of 60 to 80 cc is recommended to reduce cerebral edema and to improve circulation Potassium therapy is always indicated when there is a deficit of this ion It is advisable to hydrate the patients with 30 cc of one-half or one-third strength sodium chloride solution and 5% dextrose solution per kilogram of body weight before giving potassium This ion should be given at a rate not to exceed 3.5 mEq per kilogram of body weight per 24 hours Oxygen should be given early and in high concentration to all patients with severe depression of the central nervous system Its administration should be started before hypoxia becomes intense and before the depressed respiration becomes dependent on the impulses arising from the carotid body Exchange transfusions may prove helpful particularly in early cases when the procedure would be valuable in reducing the concentration of poison in the plasma and aid in its elimination If there is a release of the poison from body depots such as fat in patients with barbiturate poisoning the procedure may be repeated with benefit It would be of no benefit in patients in whom irreversible damage of the central nervous system is likely

Management of Neuroses by the Internist and General Practitioner H Berger New York J Med 56 1783-1788 (June 1) 1956 [New York]

The neurotic person with his innumerable symptoms his inability to recover his discouragement and his effect on his environment, constitutes a difficult problem When the practitioner recognizes that the problem is psychosomatic these patients may be advised to "forget it or to "keep a stiff upper lip " This is usually fruitless because this type of person is incapable of resolving a frustration if he were able to do this alone, seemingly organic symptoms would never have developed To advise such a patient to forget it" is about as useless as ordering a legless invalid to run a race The author found it helpful to acquire psychiatric interview techniques and to learn to listen rather than to speak to these patients They never wish to be told they are just nervous They are certain that they are seriously ill and they demand that the physician treat their disease Placebos may do but since the patient believes he is suffering from an organic illness it is frequently necessary to administer some form of therapy at the office As the patients become more friendly they may begin to unburden themselves about problems they dare not discuss with a stranger Referral to a psychiatrist is rarely advisable The patient is usually reluctant to admit that he is mentally sick and he can continue to believe that he is organically ill as long as he visits the office of a nonpsychiatrist

These patients require an explanation as to why a severe stomach ache or diarrhea is due to nervousness and not to ulcer or cancer The author has found it helpful to point to an electric lamp and say to the patient "Let s assume that that lamp were to go out this moment What would you say caused the trouble? A faulty bulb? The wiring? A fuse? The generating plant itself? Note that the bulb is not the only possible cause Then isn t it just as possible that a pain in your stomach might be due not only to a disease of your stomach but also due to disease in the nerves leading to your stomach or due to an illness or derangement in the brain?" The brain seems to function on two levels one having to do with reason and the other with emotions Insane people do not have functional complaints and, conversely, nervous people do not become lunatics There is a large element of truth in these statements and they are usually readily accepted by the patient To cure nervous strain efforts should be made to (1) remove some of the causes of strain (2) build up the nervous system so it can stand more strain, (3) remove the nervous tensions within the patient New interests are helpful The patient should also be shown that his nervousness is really an asset, that is, pent up energy All this misdirected energy can be directed into productive work If the patient asks why he needs a doctor if he is not sick, he can be told that a person cannot read a card held against his nose, but if it is held a foot away he can read it easily Similarly, the physician's impartial detachment from his problems makes it easier to see and recognize the difficulties

Phenobarbital, reserpine, and chlorpromazine have proved helpful in the management of these neurotic patients The Rauwolfia alkaloids in 1-mg doses are very effective In hysterical or highly agitated people, chlorpromazine in 50-to-100-mg doses has been infused In 94 severely incapacitated patients, intravenous mephenesin helped to establish sufficient rapport that cure or control of all presenting symptoms was obtained in 87 The seven patients in whom the treatment failed were all psychotic

SURGERY

The Pattern of Metastasis of Carcinoma of the Thyroid G Crile Jr Ann Surg 143 580-587 (May) 1956 [Philadelphia]

In 33 of 69 patients with papillary carcinoma of the thyroid, the thyroid was not palpably enlarged, there was slight diffuse enlargement, or nodules with diameters of 1 cm or less were palpable In 29 of these 33 patients, the secondary cancer was the presenting sign of the disease and in 28, despite the small size of the primary tumor, 6 to 40 cervical lymph nodes were involved In four of these, distant metastases were present before the primary tumor was recognized Palpable nodules with diameters of 1 to 3 cm were present in 29 patients and palpable nodules with diameters of 4 to 6 cm in 7 These observations suggest that, if papillary carcinomas of the thyroid are capable of metastasizing, they usually do so before they form noticeable primary tumors If papillary carcinomas of the thyroid are large enough to form noticeable primary tumors and still have not given rise to recognizable metastases, there is little chance that they will metastasize even if they are left untreated for long periods of time When a primary papillary carcinoma of the thyroid has not given rise to recognizable metastases, there is no indication for prophylactic neck dissection Delay in the treatment of frank papillary carcinoma of the thyroid does not seem to alter the good prognosis for the patients with this type of tumor In more than half of the patients there were delays varying from 2 to 32 years, and yet in all these patients the local disease appeared to have been eradicated by surgical treatment Undifferentiated carcinoma of the thyroid, however, is one of the most malignant of all cancers It occurs almost exclusively in patients over 40 years of age and is a uniformly fatal disease that usually arises with no history of preexisting goiter and is rarely if ever controlled by operation regardless of how early or radically it is treated There is a small group of angioinvasive carcinomas of intermediate malignancy whose clinical behavior and relationship to nodular goiter is so variable that it is impossible to determine whether or not their early removal would sometimes prevent distant metastasis Clinical and laboratory evidence suggests that manipulation of angioinvasive carcinomas at the time of operation may force cancer cells into the bloodstream and give rise to metastases The value of routine removal of all thyroid nodules in order to prevent death from cancer is questionable The course of most cancers of the thyroid is determined by the biological characteristics of the tumor and the resistance of the host and bears little or no demonstrable relationship to moderate delay in treatment

The Treatment of Tuberculous Lung Cavities by Continuous Intrapulmonary Drip A Preliminary Report D J M Jenkin Brit J Tuberc 50 181-186 (April) 1956 [London, England]

Eight patients with cavitary pulmonary tuberculosis were treated by insertion of a rubber catheter of suitable size into the cavity to be treated and by running antibiotics in solution into the cavity, combined with cavity drainage The solution used consisted of 1 5 to 3 gm of isoniazid in 60 or 120 cc, respectively, which was used to dissolve 5 gm of streptomycin, 1,000,000 units of penicillin, and 1 gm of oxytetracycline The total instillation was so regulated as to require eight hours, including occasional periods when the drip was shut off to give the patient a rest Depending on the condition of the patient and response to the drip, the procedure was repeated at weekly or biweekly intervals Sputum output increased greatly The patients became febrile, usually by the end of the first day This was caused by liquefaction of material within the cavity and dissemination and absorption of toxic products Adequate amounts of antibiotics were given parenterally or by mouth, the antibiotic of choice being selected by means of preliminary sensitivity tests on secondary invaders previously obtained from the cavity One gram of streptomycin was given daily together with maximum doses of isoniazid in the earlier weeks of treatment by intrapulmonary drip, and between each treatment water-sealed drainage of the cavity was maintained Complete cavity closure was obtained in three patients The remaining five were still undergoing treatment, but in each of these successful results were anticipated because great reduction in cavity size and sputum output had already occurred In every patient there remained a second or third cavity yet to be treated, therefore, at this stage sputum conversion had not occurred to enhance the results of treatment Following this form of "medical curettage" of a tuberculous cavity, slight blood-staining of the sputum was to be expected and, apart from the necessity for reassuring the patient, was ignored

Total Pancreatectomy I Honjo J Internat Coll Surgeons 25 551-557 (May) 1956 [Chicago]

Experimental investigations in dogs and the clinical use of total pancreatoduodenectomy in eight patients, one of whom was leading a healthy life three years after the operation, have shown that this procedure might well be more widely applied to man The author's studies were designed to throw light on the postoperative complications by which the patient's life may be endangered and the best methods of preventing them These complications are fatty liver, insulin sensitivity, hypoglycemia, jejunal ulcer, ascending infection of the biliary ducts, and disturbances of metabolic function Evaluation of the efficiency of the gastrointestinal tract after total pancreatoduodenectomy in three patients showed that the average absorption rates of protein and fat dropped 25% and 43%, respectively, while the carbohydrate rate remained almost normal These figures show that the postoperative capacity for absorption is much better in man than it is in dogs

Other workers have found that total pancreatectomy in dogs is sometimes followed by the development of a fatty liver and a reduction in the amount of esterified cholesterol in the serum, even to zero Eventually, the dogs die as a result of severe hepatic dysfunction These complications, if they occur in human beings, would necessarily lead to hesitation in the use of this procedure in clinical practice The ester-cholesterol ratio was therefore studied in three patients at various periods after total pancreatoduodenectomy The first patient was in satisfactory condition without any medicament except insulin three years after the operation, and since his serum cholesterol-ester ratio was within normal limits throughout the postoperative period, there seemed to be little likelihood that fatty liver would develop Liver function in the second patient was seriously disturbed at the time he was admitted to the hospital His serum cholesterol-ester ratio returned to normal after operation and maintained its level for about 30 weeks, gradually decreasing thereafter until his death from progressive disease one year after he was operated on The third patient died of anorexia and emaciation five months after operation and was found at autopsy to have had generalized tuberculosis The serum cholesterol-ester ratio in this patient began to decrease when his general condition deteriorated, and since it is known that a fatty liver is apt to develop in certain patients with tuberculosis, its occurrence in this case cannot be ascribed solely to removal of the pancreas The development of fatty liver in man, therefore, seems to occur only in exceptional cases

Studies relating to other postoperative complications in man show that (1) as long as an adequate food intake is maintained, the amount of insulin administered need not be reduced after total pancreatectomy in order to prevent hypoglycemia, (2) the endocrine activity of the pituitary gland is lowered after total resection of the pancreas (3) it may be possible to prevent the development of jejunal ulcer by keeping the blood sugar level relatively high above normal (4) ascending infection of the biliary ducts can be prevented by removing the gallbladder concurrently with the pancreas and (5) an adequate calcium intake should be provided when necessary to prevent disturbances of calcium metabolism

Substitute for Stomach After Total Gastrectomy Use of Right Half of Colon K. C Jonas J Internat Coll Surgeons 25 558-561 (May) 1956 [Chicago]

The difficulty encountered by surgeons in finding a satisfactory replacement for the stomach has seriously retarded acceptance of total gastrectomy as the operation of choice for gastric cancer Most investigators are agreed that the viscus used to replace the stomach should be interposed between the esophagus and the duodenum, first, because this position preserves the normal relations between the organs and permits free regurgitation of bile and pancreatic juice into the new stomach which is a distinct aid to digestion second, because the food is not swept out prematurely as a result of lying distal to the duodenum, and third because the need for a side opening with the distressing reflux esophagitis that accompanies it is avoided. The new stomach should also have some intrinsic absorptive power and it should approximate the normal stomach in capacity The Hunnicutt operation or transposition of the terminal portion of the ileum and the right half of the colon, which meets these requirements surprisingly well, was carried out in four patients without operative mortality Anastomotic leakage from the terminal portion of the esophagus occurred in one patient Attempts to close the leak were unsuccessful but a "gastrostomy" into the cecum functioned well enough to enable the patient to be ambulatory for seven months before succumbing to extensive recurrence of malignant disease in the epigastrium The substitute stomach in the other three patients, though not ideal, functioned much better than any esophagojejunostomy observed by the author Food capacity was greater the tendency to dumping though present at first, did not persist, and postoperative loss of weight was not pronounced. One patient died 13 months after the operation of recurrent malignant disease producing obstructive jaundice but for 12 of those months he was essentially free of digestive complaints The third patient regained the weight he had lost in the hospital and was without evidence of digestive disturbance when he succumbed to extensive pulmonary metastases about a year later The fourth patient was still living 18 months after the operation, and, although he was not able to digest fats well his nitrogen balance was positive and he was essentially free from complaints The primary healing and good immediate functioning of all the anastomoses in these patients was probably due in large part to the use of fine-gauge interrupted stainless steel sutures None of the patients required intestinal intubation either before or after operation

Effect of Venous Shunt Surgery on Liver Function in Patients with Portal Hypertension: A Follow Up Study of 125 Patients Operated on in the Last Ten Years D S Ellis R R Linton and C M Jones New England J Med 254 931-936 (May 17) 1956 [Boston]

The authors studied 125 patients who were subjected to 130 shunt operations to relieve portal hypertension Eighty-eight of these patients were treated by splenectomy and a splenorenal anastomosis There were 21 deaths in this group (24%) Thirty-seven patients underwent a direct portacaval anastomosis with 15 deaths to date, or 40.5% Death from hepatic failure occurred in 10 of the 88 patients (11%) undergoing splenorenal anastomosis, and in 10 of the 37 patients (27%) in whom a portacaval shunt was made This difference in mortality, as well as the morbidity in the patients after portacaval shunts, induced the authors to do the splenorenal shunt when possible in spite of the fact that recurrent bleeding was slightly more frequent in the splenorenal shunt group There were five so-called makeshift, or lesser, shunts These shunts were anastomoses between lesser tributaries of the portal circulation and the inferior vena cava, the left adrenal vein and the left ovarian vein These were made in patients in whom it was found impossible to use the portal vein or in those who had had previous splenectomies In general, these shunts had limited value and none of them were as satisfactory as a splenorenal or direct portacaval shunt. Of 54 patients operated on 27 were living five or more years later and 102 of 125 or 81% lived for at least one year after operation. Comparison of this series of patients with other series treated without operation revealed that the occurrence of bleeding was greatly reduced and life was prolonged in the authors series Of 76 patients reexamined by roentgenologic study, 80% were found to have reduction in the size of the esophageal varices This is interpreted as evidence of reduced portal pressure Examination of and laboratory tests on many of the 82 patients now surviving revealed clinical and laboratory evidence of improvement in liver function

Factors Contributing to Ileostomy Dysfunction W F Barker West. J Surg 64 235-239 (May) 1956 [Portland, Ore]

Although rehabilitation of a patient with ulcerative colitis by ileostomy and colectomy is gratifying to the surgeon, it should be remembered that the operation is fraught with pitfalls The author reviews observations on 43 patients who were subjected to ileostomy because of ulcerative colitis Twenty of these patients complained of complications that followed their initial ileostomy, performed elsewhere Twelve of the 23 patients in whom the author performed the first operation remained free from complications Inasmuch as several patients had more than one complication individual episodes are discussed The author classifies the complications resulting in poor ileostomy function as intrinsic disease or direct surgical complications The former group included primary ascending enteritis intra-abdominal adhesions, and carcinoma in the retained colon In the latter group were prolapse, stricture fistula, and retraction of the ileostomy, excoriation of the skin and inability to keep an ileostomy bag in place and intestinal obstruction due to improper placement of the ileal mesentery and, hence, development of a prestomal axial twist. Pulmonary embolus and peritonitis were the chief causes of the four postoperative deaths Two other deaths due to ileac perforation occurred six to nine months after ileostomy Although the number and variety of complications may appear startling 33 of the 37 surviving patients gained weight, many between 50 and 80 lb, following ileostomy, and all but three of the survivors were better able to perform their normal activities than before operation. Even those who had the most untoward complications stated spontaneously their preference for ileostomy in comparison to their preileostomy status The increasing popularity of the operation is allowing accumulation of technical information useful in preventing or treating these complications The end-result of ileostomy for ulcerative colitis should be almost complete social and physical rehabilitation

The Management of Cecal Cancer Discovered Unexpectedly at Operation for Acute Appendicitis H A Patterson Ann Surg 143 670-681 (May) 1956 [Philadelphia]

Of 17 patients between the ages of 23 and 82 with cancer of the right half of the colon, the base of the appendix was blocked by cecal cancer with resulting appendicitis in 13 One of the tumors was a malignant carcinoid of the cecum and the others were of the usual type In 7 of the 13 patients a preoperative diagnosis of acute appendicitis was made and a correct diagnosis of cecal cancer was made promptly at the time of the first operation Four of the patients died within 19 days to two years after the first operation, and only three were doing well the longest current survival without evidence of disease being 21 months These results are discouraging but one must remember that, with cecal cancer acute inflammatory manifestations usually mean advanced disease It is felt that the first chance at these tumors is the best and that immediate resection should be done whenever feasible In the remaining 6 of the 13 patients the diagnosis of cecal cancer was delayed for from three months to seven and a half years usually necessitating multiple operations One patient did well for seven and a half years because of the favorable nature of his tumor (cecal carcinoid carcinoma) In another of these patients, good palliation was obtained by two right ileocolectomies performed at an interval of three months Only one of the six patients who underwent no less than three operations was apparently cured and seemed to be well more than 10 years later Curative surgery may be attempted in advanced cases, even if it involves removing a large segment of the abdominal wall

Four additional patients with cecal cancer are reported on whose cases were closely related to those in the 13 patients In the first of these, the cecal cancer gave a typical picture of acute appendicitis, without causing it The second patient was operated on for acute appendicitis associated with cecal distention, secondary to annular obstructing cancer of the colon, distal and remote from the right lower abdominal quadrant The third patient had appendicitis caused by obstruction of the base of the appendix by a secondary tumor (primary in the rectum), probably a rare occurrence In the last patient, there was perforation of a cecal cancer, and the changes in the appendix were due merely to involvement in the wall of the resulting abcess This patient was the only one of the group in whom resection of the ascending colon was preceded by preliminary ileocolostomy The four patients died within five to seven months after the operation

A review of the literature confirmed the impression that earlier diagnosis and better results should follow greater awareness of the rather common association of appendicitis and cecal cancer The acute appendicitis may even be considered a fortunate sequel of the location of the neoplasm, making a silent cecal cancer announce its presence A plea is made for early and radical operations in these cases Although preliminary drainage may be necessary with some of the foul abcesses that have been present for some days, in most patients with coexisting cecal cancer and acute appendicitis (even with perforation) the first chance at cure is likely to be the best chance

Obstruction of the Alimentary Tract in the Neonatal Period G A Hallenbeck Minnesota Med 39 265-270 and 275 (May) 1956 [St Paul]

The types of obstruction of the alimentary canal likely to be encountered during the neonatal period include atresia of the esophagus, hypertrophic pyloric stenosis, malformations of the anus, incarcerated hernia (inguinal or diaphragmatic), atresia or stenosis of the intestine, incomplete rotation of the midgut, meconium ileus, duplications of the intestinal tract, obstruction associated with Meckel's diverticulum, annular pancreas, and aganglionic disease of the colon The first four conditions listed permit accurate diagnosis, and the surgeon ordinarily knows the cause of obstruction before operation The exact diagnosis in the remaining conditions may be suspected or even fairly certain but it is often impossible to make it preoperatively The safety factors in the surgical treatment of such infants are less than they are in adults Experienced anesthesiologists and an understanding of the management of fluid and electrolytic balance in infants are essential to success Although disappointments are common and although multiple and sometimes hidden anomalies other than the one being treated can thwart success, good results often are achieved and are extremely gratifying

Pancoast Tumor Five-Year Survival Without Recurrence or Metastases Following Radical Resection and Postoperative Irradiation W M Chardack and J D MacCallum J Thoracic Surg 31 535-542 (May) 1956 [St Louis]

Pain, paralysis, and atrophy within the lower brachial plexus territory, Horner's syndrome, and a density in the pulmonary apex with erosion of adjacent ribs are the salient features of the Pancoast syndrome Pancoast's concept of a specific branchiogenic epithelioma was discarded as subsequent observations showed that a wide variety of malignant tumors may produce a Pancoast syndrome, either by direct extension into or by metastases located in the thoracic inlet However, most such cases are due to a bronchogenic carcinoma arising in the extreme pulmonary apex It is widely held that the lesion is incurable and that the presence of a Pancoast syndrome signifies inoperability and prohibits surgical exploration A 54-year-old man was admitted to the Veterans Administration hospital in Buffalo on April 19, 1950, complaining of excruciating and intractable pain around the shoulder that radiated into the ulnar territory There were ptosis and myosis of the right eye, and a roentgenogram of the chest showed a small density in the right apex The clinical diagnosis was apical bronchiogenic carcinoma with Pancoast syndrome, and an operation was performed on May 15 The postoperative course was uneventful Neurological examination revealed the expected deficit due to removal of roots at the level of the seventh and eighth cervical vertebrae and the first thoracic vertebra, but the postoperative changes were hardly more extensive than the damage from tumor involvement observed preoperatively In the expectation of delivering a cancerocidal dose to any potentially remaining microscopic foci of an undifferentiated tumor, radiation therapy was begun, and 6,528 r was delivered over 54 days to the general tumor area The patient was seen at three-month intervals, and his status five years after the operation was excellent There was no evidence of recurrence or metastasis and no increase in the extent of his paralysis The prevailing concept that the Pancoast syndrome signifies inoperability and incurability should be reconsidered, and any unexplained persistent neuritic pain in the upper limb should be thoroughly investigated with the possibility of a Pancoast-syndrome-producing lesion in mind Earliest surgical exploration is justified because (1) the lesion may be benign and not necessarily radiosensitive, (2) if it is malignant, it may be resectable or even curable, and (3) if it is not resectable, palliation may be achieved by decompression in an otherwise hopeless and extremely distressing type of tumor

Dog Bites of the Face T L Barclay Brit J Plast Surg 9 34-37 (April) 1956 [Edinburgh, Scotland]

Thirty-one patients with dog bites of the face were operated on with the aid of general anesthesia at a plastic center Twenty-five patients had tissue loss and six had lacerations without loss In most of the cases the patients were more to blame for the bites than the dogs Sepsis was no more a problem in these patients than in others with facial lacerations Primary healing was uneventful in four patients with nasal injuries, two of whom had partial forehead rhinoplasties and two, postauricular Wolfe grafts Special attention was paid to bites of the upper lip, which occurred in 13 patients They were thought to be caused in most patients by damage while kissing the dog The treatment that gave an immediate final repair with minimal scarring consisted of wedge excision of the affected area, the muscle underlying the defect was excised in an inverted "V" together with skin and mucosa towards the apex, and straight closure of the resulting defect, preferably with a Z-plasty on the vermilion border, was done The same treatment is applicable to wounds of the lower lip

Synovial Specimens Obtained by Knee Joint Punch Biopsy Histologic Study in Joint Diseases H A Zevely, A J French, W M Mikkelsen and I F Duff Am J Med 20 510 519 (April) 1956 [New York]

This report is based on 55 synovial biopsies of the knees of 49 patients The instrument and technique used were those developed by Polley and Bickel For interpretation of the joint fluid characteristics, the normal values reported by Ropes and Bauer were used The classification of pathological fluids into three groups, also by Ropes and Bauer, was found convenient Group 1 fluid resembles normal synovial fluid and is representative of traumatic, neuropathic, and degenerative joint effusions Group 3 is representative of septic effusions, with marked elevation of the leukocytes, predominance of polymorphonuclear leukocytes, and low relative viscosity values Group 2 is intermediate, particularly with respect to the cell count The fluids associated with gouty arthritis and with the inflammatory phase of rheumatic fever are often of this type Those of rheumatoid arthritis can be considered representative of this group but may also be of group 3, depending on the severity of the inflammatory process It is important to remem ber that there are normal variations in the synovial membrane from one anatomic location in the joint to another. According to Kling the suprapatellar bursa near the distal part of the quadriceps tendon is lined by a synovial membrane with sparse cells and few blood vessels overlying the collagenous bundles of the quadriceps tendon. In the proximal portion of the suprapatellar bursa (from which most of the specimens of this study were obtained) the synovial membrane is well developed, has numerous villi and in places is lined by cells that may form several rows beneath which there is a synovial tissue of loose collagen fibers, varying amounts of fat and numerous blood vessels.

One mild, transient symptomatic hemarthrosis was the only complication observed in the 49 patients subjected to punch biopsy of the knee joint. Diagnoses made on the basis of this procedure included gout, rheumatoid arthritis, neuropathic joint disease and tuberculosis. Although in most of the patients with rheumatoid arthritis the biopsy was not secured for diagnostic purposes, it did yield material characteristic of a rheumatoid process in 17 of 25 patients. The procedure was valuable in the differential diagnosis of monoarticular processes in which tuberculosis and rheumatoid arthritis frequently are the first considerations. The synovial alterations of rheumatoid arthritis, Reiter's syndrome, disseminated lupus erythematosus and dermatomyositis were qualitatively so similar that the synovial biopsy was not conclusive in differentiating these diseases. Finding urate deposits in the synovium of acutely gouty joints in some patients with nontophaceous gout was not anticipated. This settled the diagnosis in two patients with normal serum uric acid levels. The synovial findings in neuropathic joint diseases were characteristic of these diseases, particularly with respect to the widespread lime salt deposits. Punch biopsy of the knee seems to be a practical diagnostic method in patients in whom conventional arthrotomy is inadvisable and other measures have not revealed the diagnosis.

Considerations on Metastatic Cerebral Tumors Based on 57 Cases. J-E Paillas, J Bonnal and R Soulayrol. Semaine hop Paris 32:1537-1541 (May 6) 1956 (In French) [Paris, France]

The authors report on a series of 57 patients with metastatic tumors in the brain verified histologically after 32 surgical removals followed by roentgen therapy, 4 decompressive operations followed by roentgen therapy, and 21 autopsies. Thirty-two of the patients were men and 25 were women; the greatest frequency of cerebral metastasis occurred at about the age of 50 years. There were 16 cases of carcinoma of the lung and 13 of carcinoma of the breast. Usually the metastasis was homolateral to the tumor. In addition to the well-known syndrome of headache with loss of consciousness 23 patients had papilledema when first seen. Electroencephalography and angiography were useful in locating the metastatic sites, but neither method was wholly satisfactory.

It is difficult to know whether to operate on patients with tumors of the brain that are metastases from malignancies elsewhere in the body. The survival rate among such patients treated in this way is uninspiring in the authors' series; half the patients were dead nine months after operation. Nevertheless, surgical therapy may be considered when a metastatic cerebral tumor threatens the patient's life directly, when there is reasonable assurance that it is a single nodule, when it is so located that it cannot easily lead to dissemination and when the primary tumor is located in the breast, kidney, or digestive tract. The prognosis of metastases in the brain from carcinomas of the lung is poor.

Results of the Use of Acrylic Prostheses in Arthroplasty of the Hip. M J Kingma. Nederl tijdschr geneesk 100:1074-1082 (April 14) 1956 (In Dutch) [Haarlem, Netherlands]

A follow-up study was made on 70 hip joints in which acrylic prostheses had been used in arthroplasties from one to four years previously. The operations had been performed for primary or secondary arthrosis deformans, osteochondrosis of capital epiphysis of femur, epiphysiolysis, chondrodysplasia, congenital dislocation of the hip joint, and ankylosis after arthritis. The results of the arthroplasty operation with acrylic prostheses were disappointing in that only 36 could be considered successful and 34 were failures. Furthermore in some instances the results had deteriorated in the course of time. In discussing the factors influencing the success or failure of arthroplasty with acrylic prostheses the author differentiates between mechanical and biological factors and those attributable to the prosthesis. The position of the prosthesis is the most important of the mechanical factors. The author explains this with the aid of a diagram illustrating the forces acting on the prosthesis. The condition of the soft parts, the reaction of the pelvis and of the neck of the femur to the prosthesis and the patient's mental make-up are the important factors. Defects of the acrylic prosthesis such as breakage, corrosion, and wear and tear are quite frequent. Loosening of the prosthesis is among the chief causes of deterioration in initially successful arthroplasty with an acrylic prosthesis. The author advises against continuation of arthroplasty with acrylic prostheses and recommends utmost reserve with respect to other methods of arthroplasty of the hip joint.

Experiences with Apicoaxillary Thoracoplasty According to Morelli-DiPaola's Technique in Patients with Cavitary Pulmonary Tuberculosis. P Kyrle. Wien med Wchnschr 106:381-382 (April 28) 1956 (In German) [Vienna, Austria]

Thirteen patients with cavitary pulmonary tuberculosis were subjected to an apicoaxillary thoracoplasty with extrafascial apicolysis according to Morelli-DiPaola's technique. The original method consisting of a unilateral plastic procedure involving four or five ribs was used in seven patients on whom an apical plastic procedure was considered sufficient. The original technique was modified by a second-stage operation in three patients with extensive cavitary changes or with an old rigid tertiary cavity. Within from two and one half weeks to two and one-half months after the original operation this was completed caudally by a paravertebral operation with resection of the sixth and seventh ribs. In the last three patients who seemed to require an extensive plastic procedure downward the operation consisted of a newly devised and extended one-stage plastic procedure involving six ribs. Early results of treatment were excellent in 12 patients and satisfactory in one. The advantages of the Morelli-DiPaola operation are as follows: 1. Tissues are spared and the operative trauma is slight; there is speedy recovery and surgical indications may be widened in patients of more advanced age with reduced vital capacity and in those with an incompletely stabilized pulmonary process (late recent cavities). 2. An extensive immediate operative collapse results in horizontal and vertical direction from the extensive one-stage procedure; it is particularly significant in patients with larger cavities associated with recurrent hemorrhage and the risk of dissemination from the cavity. 3. The axillary line of incision and sparing of the muscles of the shoulder girdle provide good cosmetic and functional results.

Successful Resections for Bilateral Pulmonary Arteriovenous Fistulas. H A Lyons and E P Mannix. New England J Med 254:969-974 (May 24) 1956 [Boston]

Over 150 cases of pulmonary arteriovenous fistulas have been reported, but this lesion may still defy early recognition. This is particularly true of bilateral arteriovenous fistula of the lungs, reports of which are rare. Reports of successful bilateral resections of lung tissue containing pulmonary arteriovenous fistulas are even rarer. The authors present what they believe is the third reported case of a patient successfully treated by bilateral lung resection to eradicate pulmonary arteriovenous fistulas. The patient was a 62-year-old woman in whom bronchogenic neoplasm or pulmonary tuberculosis had been considered the most likely diagnosis. Cerebral symptoms were attributed to some coexistent but unidentified lesion. The probability of an etiological relation between the lesions in the lung and the intracranial lesion causing the subarachnoid hemorrhage was not considered. The patient is an example of one who had dyspnea, mucosal hemangiomas, bilateral pulmonary bruits and a severe gastrointestinal hemorrhage that depressed the blood elements to anemic levels, so that cyanosis and polycythemia were not detected during the period of observation. The patient was subjected to bilateral pulmonary resection and after that her health improved greatly.

The outstanding features of pulmonary arteriovenous fistulas are cyanosis, clubbing of the fingers, and polycythemia associated with dizziness in the absence of cardiac abnormality, dyspnea, syncope, and dysarthria Many patients have small capillary hemangiomas of the skin or mucous membranes Such mucocutaneous telangiectases constitute a very important diagnostic sign Half the patients have these findings of the Rendu-Osler-Weber syndrome, so that a thorough examination of the skin, nail beds, ears, nose, throat, larynx, and retina in search of angiomas is strongly advocated Cyanosis dominates the clinical picture, but it may be absent if the shunt is small, and it may disappear after hemorrhage Epistaxis may be severe Hemorrhages may arise from arteriovenous fistulas in the gastrointestinal tract or as a result of duodenal ulceration, which is a common accompaniment of polycythemia Radiological aspects and physiological changes observed in patients with pulmonary arteriovenous fistulas are discussed The authors believe that the large majority of pulmonary arteriovenous fistulas should be resected, since removal of the lung tissue containing the fistulas is the only effective therapy The number and location of the lesions may preclude complete ablation because too great a sacrifice of tissue may be necessary This may be the reason why bilateral pulmonary resection for arteriovenous fistulas has rarely been reported

Carcinoma in Hiatus Herniae A M Wiley Postgrad M J 32 259-261 (May) 1956 [London, England]

Wiley presents the history of a woman, aged 72, who had been well until four months prior to admission, when she gradually became unable to swallow solids Her dysphagia was painful, and the pain radiated into her back She regurgitated solid food soon after swallowing and had lost much weight On clinical examination no abnormality could be detected, but at esophagoscopy on the day of admission she was found to have a diffuse lower esophageal stricture Roentgenologic studies suggested a hiatus hernia containing a neoplasm Worsening of the dysphagia made a jejunostomy necessary, which was followed by rapid improvement A thoracolaparotomy a month later revealed a sliding hiatus hernia and a mobile growth within the cardia An esophagogastrostomy was performed, and examination of the surgical specimen revealed an extensive adenocarcinoma of the cardiac end of the stomach The discovery of a hiatus hernia in association with a lower esophageal or upper gastric carcinoma is not uncommon A hiatus hernia was found to coexist with esophageal hernia in 10 of 100 patients observed at one hospital between 1948 and 1954 The growth was either at the lower esophagus or the cardia While it is conceivable that a single factor, esophagitis, may result in fibrosis, periesophagitis, formation of hiatus hernia, and eventually in carcinoma, there are many arguments against such a theory Evidence suggests that the carcinoma is the initial lesion One observer suggested that invasion of the lower esophagus by a gastric neoplasm causes esophageal shortening, and that directly or indirectly induced spasm of the esophagus may be a factor in the formation of hiatus hernias

Alterations in the Sympathetic Ganglia in Patients with Thromboangiitis Obliterans Before and After Unilateral Adrenalectomy G Cadili Minerva chir 11 213-219 (March 15) 1956 (In Italian) [Turin, Italy]

The author reports on a series of 20 patients with thromboangiitis obliterans who were 25 to 40 years old Many of them already had some gangrene in one or two toes, and 13 had undergone unilateral adrenalectomy from nine months to two years before The local condition had improved markedly, but after some time the disease reappeared The sympathetic ganglia were removed in some patients at the time of the adrenalectomy and in some at a later date Histological examination of the ganglia of the first group showed atrophic changes varying in type and intensity in the neurons, chromatolysis, vacuolation, proliferation, fragmentation of the dendrites, thickening of the pericellular capsule, proliferation of the surrounding cells, hyperplasia of the stroma with formation of large areas of fibrosis, thickening of the walls of the arterioles in different stages of evolution, at times to the extent of complete obliteration of the vessel, and dilatation of the capillary and of the small veins, especially in zones without arterioles All these alterations tend to transform the ganglion into fibrous connective tissue The alterations in the second group were similar to those of the first group, but less pronounced The lesions of the ganglia were proportional to the age of the patient and the particular function of the ganglion involved Ganglial lesions are the result of a general vasculopathy of unknown cause Adrenalectomy improves the circulation and stops the progress of the disease

The Hazards After Cholecystectomy, with Review of 500 Case Records J M Yeates M J Australia 1 646-648 (April 21) 1956 [Sidney, Australia]

The author studied the case records of 500 patients who had undergone a cholecystectomy at Sydney Hospital during the years from 1949 to 1954 All patients underwent elective operations Complications developed in 67 patients There were 10 deaths, of which 5 occurred among the 449 patients subjected to cholecystectomy alone, while the other 5 deaths occurred in patients in whom gallbladder removal was combined with duct exploration Fifty-one or 75% of all complications were directly due to the injury inflicted by the surgeon The author believes that, if a patient does not thrive after a cholecystectomy, the dressing should be removed and the wound treated Such an obvious precaution seems in danger of being forgotten in the rush to try the latest drug The author also feels that some of the complications must be blamed on the patients and perhaps on the doctor This analysis demonstrated that the "vintage" gallbladder, fibrotic and well-entrenched in the liver, resents being dislodged It was demonstrated that when stones enter the common duct after having been lodged in the gallbladder for years, the mortality rate of operation rises from 1 1% to 18 2% Although the average age of the patients was 48 years, the average age of the 10 who died was 63 years These facts underline the danger in delay Patient and doctor should realize that once gallstones are discovered, their early removal is mandatory

Perforating Ulcer C K Schaaning Nord med 55 507-509 (April 12) 1956 (In Norwegian) [Stockholm, Sweden]

Of the 66 patients with perforating ulcer treated in Opland District Hospital from 1938 to 1954, 36 had a duodenal ulcer, 22 a gastric ulcer, 6 a peptic jejunal ulcer, and 2 a concealed ulcer The oldest patient was 85, the youngest, 10, the average age was 46 In principle members of the hospital staff favor resection with strict indications the operation should take place preferably not more than 6 hours after perforation and not over 12 hours after it, the patient should be in good general condition with only slight symptoms of shock, the abdominal conditions should be fairly favorable for resection, and the surgeon should be experienced Primary resection was performed in 19 cases, with one postoperative death in a patient in whom resection was performed 17 hours after the perforation because suture was impossible Suture of the ulcer, in 35 cases, was followed by 7 postoperative deaths Ten patients were treated conservatively, with secondary resection in two Two patients were moribund on admission and died without treatment Two patients treated with suture died from peritonitis, the degenerative process in the intestinal wall had spread On follow-up of 47 patients with at least three years observation, the 14 patients treated with resection were well The results were good in 11 of the 25 treated with suture, and 9 of the 14 with recurrence were later treated with resection The results were good in five of the eight patients treated conservatively

Unsatisfactory Results After Cholecystectomy S H Lovell M J Australia 1 644-646 (April 21) 1956 [Sydney, Australia]

The most common type of unsatisfactory result after cholecystectomy is the so-called postcholecystectomy syndrome It is believed that the principal cause of this unhappy result is an error in the selection of patients for operation rather than an error of operative technique The postcholecystectomy syndrome is more common when gallstones have not been found during surgery It is an accepted belief that cholecystectomy for non calculous cholecystitis is followed by disappointing results in 65% of cases The second belief is that a number of patients who initially appear (clinically or on radiological grounds) to be suffering from gallbladder disease would, after further investigation, be found to have some other lesion, such as peptic ulcer, hypertrophic gastritis hiatus hernia, chronic hepatitis coronary disease, renal or colonic disease, or even appendicitis Sometimes gallbladder disease and one of these other lesions may coexist, and prolonged consideration will be required before the decision is made to remove the gallbladder There again, *time spent in a careful assessment is not time wasted*

The percentage of patients in whom a definite pathological entity is found on laparotomy for the postcholecystectomy syndrome is believed to be less than anticipated, and in the series observed by the author the most common finding has been dense adhesion of the pyloroduodenal segment to the region of the gallbladder fossa However, it is difficult to correlate such pathological findings with the symptoms Unsatisfactory results other than the postcholecystectomy syndrome were incisional hernia, a persistently painful back after the use of excessive elevation by a gallbladder support of a patient who already has some osteoarthritis of the spine, and postoperative stricture of the common bile or hepatic duct. Occasionally a *stricture may be the end-result or a small leakage of bile or* blood with low-grade infection The author recently drained a chronic subphrenic abscess some four years after cholecystectomy The history indicated that the patient had had a stormy convalescence Antibiotics had been administered in large doses and over the intervening period each outburst of activity had been quelled with further doses of these drugs The possibility that such chronic abscesses may persist is increased by the intensive use of antibiotics

NEUROLOGY & PSYCHIATRY

Meningoencephalitis of the Marche F Russi Minerva med 47:514-522 (Feb 24) 1956 (In Italian) [Turin Italy]

Meningoencephalitis occurred in the Marche (Italy) in epidemic form in 1945 changed to an endemic-epidemic form for about two years, and since 1951 has been present as an endemic-sporadic disease In July 1955, in the city of Ancona 300 patients were hospitalized with this disease 175 were children Several cases occurring in the same family was a common observation Except for an increase during summer and fall the incidence was about the same throughout the year Infants and young people were more affected than older people Among the latter the disease is often fatal In 80% of the patients it appeared as a benign lymphocytic meningitis encephalitic manifestations being less common The prodromal period which lasts two or three days, is characterized by general malaise a slight coryza sore throat, and at times diarrhea The first nervous symptoms come suddenly Cephalalgia or muscular pain in the back and in the lumbar region are always present Leukocytosis or leukopenia were present in some patients No specific therapy has been discovered Sulfonamides and antibiotics were not effective The best treatment is spinal puncture to stop the cerebral and meningeal pains combined with thiamine therapy Radiotherapy has been used in severe cases The causative organism is unknown but 100 strains of a single virus were isolated from these patients 42 from the spinal fluid, 29 from the stools and 29 from the throat. Preliminary investigations suggest that the virus belongs to the Coxsackie group

New Treatment of Paralysis Agitans G Gianniotti F Giberti and S Spizzirri Gazz. med ital 115 71-74 (March) 1956 (In Italian) [Turin, Italy]

Three groups of patients with extrapyramidal syndromes (paralysis agitans and postencephalitic Parkinsonism) were treated with the new synthetic drug 10870 or 3-phenyl (b-diethylaminorthyl)-2-6-piperidin-hydrochloride It acts as a parasympathicolytic and atropine-like agent. The first group of patients was treated only with 10870, the second with 10870 and reserpine, and the third with 10870, reserpine, and ritalin. The results were good in the first group, fair in the second and poor in the third The evaluation was based on the patients personal impressions and on the neurological examination before and after treatment. Hypertonia was much improved, especially in the first and third groups The tremor and the vegetative and psychic disturbances were also improved Other symptoms were not affected. Effects on the arterial pressure were not significant exept in one patient with moderate hypotension. The combination was given orally The minimal doses were 1.25 mg of 10870 0.25 mg of reserpine and 2.50 mg of ritalin. The dose was increased progressively every three or five days *The maximal daily doses were 25 mg of 10870 4 mg of* reserpine, and 35 mg of ritalin The dose was given in four or five portions in order to establish a uniform therapeutic effect throughout the day The first morning dose was larger than the others The best results were obtained with large doses given for a long time Side-effects were noticed in one patient of the first group in one patient of the third group and in three of the second group They consisted of edema of the face and in some patients in precordial and lumbar pains Sudden interruption of the therapy resulted in a rapid and increased return of the symptoms of the disease Gradual interruption of the therapy always caused a return of the original symptoms

How Brain Lesions Affect Normal and Neurotic Behavior An Experimental Approach J H Masserman and C Pechtel Am J Psychiat. 112 865-872 (May) 1956 [Baltimore]

Over a period of six years 50 cats and 40 monkeys were closely observed for their individual and social characteristics their capacity to learn various skills, and the form and persistence of the experimental neuroses induced in 23 of the cats and 18 of the monkeys by exposure to adaptational conflicts The animals were then subjected severally to lesions of the anterior or mediodorsal thalamus the amygdalae or cerebral areas 13 23 or 24 The results to date indicate that the general and specific effects of cerebral lesions vary not only with their site and extent but also with the preoperative experiences of each animal and its postoperative care and retraining The authors admit that unfortunately studies such as these must contend with a number of variables and unknowns that can at best be only partially dealt with Furthermore from the standpoint of comparative neurophysiology, the troublesome question remains as to whether homologous lesions in animals can inform us accurately about functions in the human central nervous system in which such marked encephalization and other shifts of function have occurred. Nevertheless these studies have once again helped to substantiate an important clinical maxim that the permanent effects of a cerebral lesion depend perhaps less on its site or even extent than on the personality of the patient, his significant pretraumatic or preoperative experiences and the physical and psychiatric care given him during the crucial period of rehabilitation

Allergy and Multiple Sclerosis A Critical Review S J Prigal J Allergy 27 170-196 (March) 1956 [St. Louis]

Evidence suggesting allergy as a cause of multiple sclerosis has been presented by allergists immunologists and pathologists After reviewing this evidence the author believes that the following conclusions are justified 1 Conditions resembling multiple sclerosis can be produced in animals by injections with extracts or emulsions of homologous or heterologous brain or cord tissue with or without adjuvants 2 An allergic mechanism seems involved in the experimental production of encephalomyelitis The antigen not yet identified is intimately associated with myelin tissue Homologous or heterologous nervous tissue may be antigenic. 3 The antibodies involved in experimental encephalomyelitis apparently are not capable of passive transfer Thus far antibrain antibodies have been demonstrated repeatedly by complement fixation and by precipitation or flocculation against brain antigen but no direct correlation has been shown between the appearance and concentration of these antibodies and the appearance of symptoms in the animal The specific antibody still requires identification 4 Results of skin testing with the antigen from heterologous or homologous nervous tissue are inconclusive 5 There is no complete correlation between experimentally induced encephalomyelitis and *multiple sclerosis* Presumably they both may be mediated through an allergic mechanism In experimental encephalomyelitis the allergen is ordinarily introduced by injection In multiple sclerosis the mechanism remains obscure Some evidence suggests autosensitivity, implying the release of a latent intrinsic allergen from brain tissue 6 The central nervous system is subject to a variety of allergic clinical disorders, traceable, as a rule, to extrinsic allergens and producing, ordinarily, reversible symptoms In contrast, multiple sclerosis would be an irreversible allergic reaction 7 Experimentally, allergic reactions within the brain, such as the Arthus phenomenon or the carotid syndrome of Forssman, can produce demyelination, but these have no clinical correlation and indicate merely that allergy in the central nervous system may be a factor in demyelination 8 The development of specific tissue sensitivity (autosensitivity) as an explanation for multiple sclerosis has been considered, however, no mechanism for the clinical development of such an autosensitivity has been elucidated 9 Infection has been suggested as a factor in the liberation of the antigen from nervous tissue and the induction of self-perpetuating autosensitivity Possibly cerebral allergy due to an extrinsic cause may initiate a similar mechanism 10 Demyelination may be produced experimentally by mechanisms other than an antigen-antibody reaction These include inflammatory reactions, cerebral anoxia, demyelinating enzymes, circulatory disturbances, and metabolic poisons (potassium cyanide, barbiturates) Multiple sclerosis, therefore, may be a syndrome due to a variety of causes, including an intrinsic type of allergy 11 The pathology of multiple sclerosis is compatible with, but not specific for, an underlying allergic mechanism 12 Clinical studies of the allergic aspect of multiple sclerosis have been few and inconclusive An approach limited to a narrow concept of allergy (atopy, involving sensitivity to foods and inhalants and giving immediate positive reactions to skin tests) has not been fruitful and is contrary to the evidence presented experimentally, which indicates that demyelination induced on an allergic basis is nonatopic and is probably a form of autosensitivity

New Therapeutic Possibilities in Cerebral Arteriosclerosis A W Wittermans Belg tijdschr geneesk 12 480-483 (May 1) 1956 (In Flemish) [Leuven, Belgium]

Wittermans shows that arteriosclerosis is accompanied by a decrease in the functions of various organs as the result of impairment of the vascular wall It is a neurosympathetic disorder caused by defects in the metabolism, which in turn cause changes in the enzyme systems that control the anabolism and catabolism of cholesterol and other lipoid compounds Increased infiltration of the capillary wall by cholesterol reduces its permeability, and this in turn impairs the nutrition and causes sclerotic changes in the cells of various organs Hypertension and cardiac impairment may develop on the basis of such a sclerosis The injection of Vasolastine, a combination of the enzymes citrogenase, amino acid oxidase, and tyrosinase, was found to counteract or prevent induced sclerosis in animals, and so the author used it in patients with arteriosclerosis After the drug was injected three times a week for four weeks into one of the author's patients, improvement was evident Several weeks may elapse before improvement is noted, but the preparation has a lasting after-effect It apparently acts on the metabolism, for it increases the synthesis of lipoid phosphorus and the catabolism of cholesterol and of cholesterol esters so that the lipid-phosphorus-cholesterol index increases or becomes normalized This index is decisive for the permeability of membranes and in preventing the accumulation of cholesterol The author has used the enzyme preparation in about 60 patients, and the response has been favorable in 80%

"Polycythemia" Associated with Cerebellar Hemangioblastoma A A Ward Jr, E L Foltz and L M Knopp J Neurosurg 13 248-258 (May) 1956 [Springfield, Ill]

Two cases of posterior fossa hemangioblastoma with associated erythrocytosis are described in a 45-year-old and a 32-year-old man Both patients were operated on Approximately one-third of an extremely large vascular tumor was removed from the first patient, who did not obtain general improvement in his neurological deficits and who died of aspiration pneumonia four months after the operation Complete removal of the tumor was accomplished in the second patient One year after the operation, persisting cerebellar dysfunction could be elicited only on careful neurological examination Preoperative and postoperative peripheral blood counts and determinations of blood volume were carried out in both patients They revealed that the preoperative increase in red blood cell count, hemoglobin level, and hematocrit was caused by an increase in erythrocytic elements only and that these values showed a dramatic decrease after surgical removal of the tumor In the first patient, a postoperative decrease of 7 4% was observed in the red blood cell count, 12 9% in hemoglobin level, and 9 9% in hematocrit In the second patient, the reductions of these values were 16%, 10 3%, and 16 4% respectively There was a 25% postoperative decrease in packed cell volume in both patients, a 19% reduction in blood volume, and plasma volume was decreased by 12% The primary postoperative change was thus in the absolute number of erythrocytes These findings suggest that previous patients reported on as having polycythemia did, in fact, have only erythrocytosis The erythrocytosis associated with only the solid type of hemangioblastomas and never with the cystic type may be secondary to the secretion of an erythropoietic hormone by these tumors

GYNECOLOGY & OBSTETRICS

Placental Passage of 17-Hydroxycorticosteroids Comparison of the Levels in Maternal and Fetal Plasma and Effect of ACTH and Hydrocortisone Administration C J Migeon, H Prystowsky, M M Grumbach and M C Byron J Clin Invest 35 488-493 (May) 1956 [New York]

A progressive rise in the levels of free plasma 17-hydroxycorticosteroids during the course of pregnancy has been observed by a number of investigators Normal adult concentrations have been found in the umbilical vein plasma obtained from the newborn infant at the time of delivery, but significantly lower levels were observed in infants born by cesarean section The site of production and the nature of plasma 17-hydroxycorticosteroids found in increased amounts during pregnancy and at delivery has not yet been elucidated The present study was designed to clarify the role of placental transmission of free 17-hydroxycorticosteroids and to further identify the corticosteroids found in maternal and fetal circulations The subjects were 33 pregnant women, 15 to 40 years of age Vaginal delivery was performed in nine women, cesarean section was deemed advisable in five because of placenta previa or uterine inertia, and 19 had an 'elective, repeat cesarean," the section being performed approximately at term and before the onset of labor

In women undergoing vaginal delivery, labor increased the maternal level of plasma 17-hydroxycorticosteroids over the already elevated value found in the pregnant patient at term The surgical trauma associated with cesarean section was probably responsible for the increase observed during that operation, the levels, however, were not as elevated as those noted in the vaginal series The concentrations of 17-hydroxycorticosteroids in cord plasma were about 20 to 50% of those of the corresponding mother in cases of vaginal delivery and 20% or less of those of mothers undergoing "elective, repeat cesarean section" The infusion of 25 mg of corticotropin over a period of six hours produced a normal increase of the maternal levels The intravenous administration of compound F to mothers just prior to an elective cesarean section demonstrated that, near the end of gestation, this steroid can go through the "placental barrier" but in a definite proportion, the maternal concentration being the determining factor From the data presented, it is suggested that, at term, little or no 17-hydroxycorticosteroids are produced by either the fetal adrenals or the fetal side of the placenta The most probable sites of biosynthesis of such hormones are the maternal adrenals and/or the maternal side of the placenta

Personal Experience in Modern Medical Treatment of Late Gestosis. M Giardinelli Minerva ginec. 8 170-178 (Feb 29) 1956 (In Italian) [Turin, Italy]

The author reports a series of 120 patients with late gestoses All the patients were in the sixth to ninth month of pregnancy Patients with eclampsia were not considered Thirty-four patients received only hygienic and dietetic treatment. They were ordered to remain in bed in a calm environment When necessary they were isolated Laxatives were given The fluid intake was reduced The diet stressed milk, fats and cooked fruits Proteins were restricted A diet based mainly on boiled potatoes should have great effect on the diuresis and on the edema Twenty-two patients with hypertensive nephropathy who were in the seventh eighth and ninth month of pregnancy were given 50 to 100 mg of vitamin PP and 20 to 100 mcg of vitamin B_{12} 42 were given 5 to 10 cc. of kidney extract daily 4 were given 20 to 25 mg of testosterone a day for a few days and 7 were given 0 75 mg of carbachol daily The effects were evident but poor Six patients in the seventh month of pregnancy who had hypertensive nephropathy were given fluid extract of ergot.

Improvement followed only after the expulsion of the fetus which was spontaneous in three patients and induced in the other three Often ergot when given orally causes nausea and epigastralgia Ganglionic blocking agents are effective only when there are eclamptogenic complications Their habit-forming effect makes them useless in hypertensive nephropathy Reserpine was given to nine patients Its effect is good in hypertensive syndromes but not in a complex syndrome such as a gestosis Large doses of sedatives were given often Of 34 patients who received only hygienic and dietetic treatment and some general sedatives 25 gave birth to live infants, 3 spontaneously delivered dead fetuses in 2 the delivery was successfully induced because of the aggravation of the toxemia and 4 in whom the status of the syndrome remained stationary underwent cesarean section and gave birth to live infants Of 53 women in the eighth or ninth month of pregnancy who had hypertensive nephropathy treated with antitoxic antihypertensive, and sedative agents 43 delivered live infants 3 delivered dead fetuses in 6 the delivery had to be induced and one had to undergo cesarean section because of pelvic complications Of 33 women taken to the hospital in the sixth or seventh month of pregnancy only 3 received hygienic dietetic treatment all the others received medical treatment All these patients delivered spontaneously or by induction 5 to 15 days after they entered the hospital because of aggravation of the syndrome Only three babies survived The high infant mortality associated with toxemia in the sixth and seventh months of pregnancy could be reduced by taking early prophylactic measures and by early recognition of the signs of gestoses

PEDIATRICS

Muscular Dystrophy V Blood Sugar and Serum Electrolytes Following Insulin and Dextrose, Alone or in Combination T S Danowski H K Gillespie T J Egan and others A M A J Dis Child 91 429-435 (May) 1956 [Chicago]

Patients with muscular dystrophy can readily dispose of carbohydrate loads The fact that in muscular dystrophy the muscles that form the bulk of the body tissues in which glucose may be utilized are diseased suggests that the effective disposal of such carbohydrate loads is achieved by a greater reliance on pathways other than those in muscle Healthy boys and girls in a children s home and children with a diagnosis of the juvenile form of muscular dystrophy were given crystalline insulin and dextrose intravenously alone or in combination Although children with muscular dystrophy responded to intravenously injected insulin with venous blood sugar changes that were indistinguishable from those in healthy children there was evidence of altered carbohydrate disposal in that the characteristic decreases in serum inorganic phosphorus potassium and bicarbonate that follow insulin administration were of distinctly smaller magnitude The injection of dextrose intravenously produced comparable rises and subsequent falls in the levels of blood sugar in the dystrophic children and in the control group The smaller decrement in serum inorganic phosphorus reported by other workers in a small number of patients with this disease was not evident in this larger group of children Insulin and dextrose in combination produced hyperglycemia in patients with muscular dystrophy and hypoglycemia in control subjects This inadequate disposal of glucose from exogenous and perhaps endogenous sources is compatible with decreased extrahepatic utilization as a result of diseased musculature with resultant smaller changes in serum inorganic phosphorus and potassium An alternative explanation that the hyperglycemia is attributable to inadequate deposition of glucose as liver glycogen in the presence of insulin and carbohydrate seems unlikely in view of the demonstration that in liver disease the phosphorus decrease is exaggerated rather than diminished as it is in the patients with dystrophy

Rehabilitation of Poliomyelitis-Stricken Children G Poli and M Valle Minerva pediat 8 325-329 (March 17) 1956 (In Italian) [Turin Italy]

In Italy 80% of the poliomyelitis occurs in infants under 2 years of age On admission the authors advise vaccinating the infants against diphtheria and whooping cough whether or not they have been vaccinated before Smallpox is the only infectious disease that has occurred among the infants the authors have treated for poliomyelitis In Italy poliomyelitis has so far been a sporadic disease Most of these patients are brought to a physician only after they have already been stricken with paralysis This limits the physician s task to preventing the spreading of the paralysis The infant is kept in bed as long as possible When necessary, barbital or other sedatives are used A device is used in each case to keep the blankets from weighing on the stricken joints A slow and gentle change of position performed with the help of a nurse is allowed every three or four hours If poliomyelitis has affected the lower joints, the knees are kept slightly flexed and the feet are kept at a right angle Splints are never used during the first part of therapy The treatment changes radically after two or three weeks when there is no more danger of incurring lesions in the spinal cord The child is taught to perform some segmental active exercises with progressive frequency Heat is used to decrease the neurovegetative disturbances to maintain the muscle in good condition of nutrition and of trophism and to eliminate the pains The age of the patient requires that a highly trained staff take the place of the mother during the infants stay in the hospital these patients must never be left alone Contractures are corrected by performing passive movements in warm water Gradual improvements are fixed with a removable splint After final results have been achieved, a fixed plaster cast is used Surgery is employed when contractures cannot be reduced otherwise Surgical treatment is confined only to tenotomy or tenoplasty Any other operation should be used only after the skeleton of the infant offers sufficient resistance

Muscular Dystrophy VI Diminished Blood Sugar and Serum Electrolyte Responses to Epinephrine E B Fergus W R Nichols L. M Horne and T S Danowski A M A J Dis Child 91 436-441 (May) 1956 [Chicago]

The studies described in this paper are concerned with the blood sugar and serum electrolyte responses following the subcutaneous administration of epinephrine to healthy subjects and to patients with muscular dystrophy A 1 1 000 aqueous solution of epinephrine (free of arterenol [norepinephrine]) was injected subcutaneously into healthy subjects and into patients with muscular dystrophy Following an overnight fast 0 01 ml per kilogram of body weight was administered in divided dosage at 0 10 and 20 minutes Samples of venous blood for blood sugar and serum electrolyte analyses were obtained with minimal stasis at 0 30 60 90 and 120 minutes It was found that the subcutaneous injection of epinephrine produced a smaller degree of hyperglycemia in patients with muscular dystrophy than that observed in control subjects This may reflect a lower phosphorylase response tenacious hepatic glycogen stores unresponsive to phosphorylase or diminished amounts of liver glycogen. In contrast to current views the data obtained in these studies are compatible with the fact, but do not establish the possibility, that epinephrine hyperglycemia originates in part from a release of liver glycogen and in part from a conversion of muscle glycogen to lactic acid, liver glycogen, and ultimately blood sugar Functionally defective or decreased stores of muscle glycogen could then account for the lesser epinephrine hyperglycemia in muscular dystrophy The smaller decrease in serum inorganic phosphorus, in potassium, and in serum total carbon dioxide content in muscular dystrophy are all compatible with a smaller carbohydrate load and a lower degree of acceleration in carbohydrate metabolism after the injection of epinephrine The lower electrolyte changes cited above argue against the second possibility, that in muscular dystrophy the usual epinephrine blockade of glucose assimilation or disposal in peripheral tissues is diminished, thereby accounting for the lower degree of hyperglycemia The results obtained in the present studies do not exclude the possibility that in muscular dystrophy there is a decreased contribution from gluconeogenesis to the epinephrine hyperglycemia

Muscular Dystrophy VIII Trials of Protein Hydrolysate, Vitamin Supplements, and Physical Therapy J S Donaldson, M J Wratney, A Pascassio and others A M A J Dis Child 91 449-453 (May) 1956 [Chicago]

Reports that ingestion of a protein hydrolysate together with a vitamin preparation produces distinct clinical improvement in muscular dystrophy induced the authors to try this regimen in children believed to have this disease The results obtained were compared with those obtained with physical therapy alone as well as with the spontaneous changes which occur without hydrolysate and without physical therapy Twenty-nine children with muscular dystrophy, 2 to 15 years of age, were observed at intervals by a physical therapist, an orthopedist, and a physician In all of these patients the diagnosis seemed justified by virtue of the physical and histological findings Serial measurements of muscle strength were made in the following three groups of such patients (1) children with muscular dystrophy not under treatment or just receiving vitamins, (2) those maintained on protein hydrolysate and vitamin supplements without physical therapy, and (3) children maintained on the protein-hydrolysate-vitamin regimen while receiving physical therapy Serial measurements in children with muscular dystrophy revealed losses of motor power despite a regimen of protein hydrolysate and vitamin supplementation, with or without physical therapy, during periods up to one year or more in length Occasional slight improvement during such therapy was also noted in one of the patients under observation without any treatment whatsoever The favorable reports obtained from the patients and their families suggesting improvement during one or the other of the regimens represented optimistic hope or possibly the acquisition of a greater skill through physical therapy and encouragement in using remaining motor strength The data obtained did not permit the authors to decide whether the rate of deterioration was altered during any of the regimens tested The importance of not interfering with a patient's own postural or functional adjustments to his disability became evident during serial visits for muscle treatment and examination The protein hydrolysate and vitamins did not discernibly alter the somewhat elevated fasting levels of serum calcium and phosphorus previously shown to be present in children with muscular dystrophy

UROLOGY

Present Status of Treatment of Carcinoma of Prostate with Radioactive Materials G J Bulkley, J A D Cooper and V J O'Conor J Urol 75 837-845 (May) 1956 [Baltimore]

Between April, 1953, and August, 1955, 44 patients with carcinoma of the prostate were treated by interstitial irradiation with isotopes including radioactive gold (Au^{198}), chromic phosphate (P^{32}), and yttrium chloride (Yt^{90}) Perineal injection, using multiple needles introduced into the perineum and guided to the various portions of the tumor mass by a finger in the rectum, was carried out in 41 patients, and in the first three patients the isotope was injected by the suprapubic and retropubic route as described by Flocks The method of perineal injection was preferred because of its simplicity, the short hospital stay, and low morbidity The size of the prostate was estimated and a dose of about 2 mc per gram in the case of gold and about 1 mc per gram in the case of phosphorus and yttrium was used Before the injection of the isotope, a catheter was introduced into the bladder and left indwelling in order to collect the radioactive urine This catheter was left in place for 48 to 72 hours, until significant radioactivity was no longer present in the urine Urinary excretion of the injected isotope occurred chiefly during the first 48 hours At times a preliminary transurethral resection of the bladder neck was done in order to reduce the mass of the tumor and to ensure that the patient would be able to urinate postoperatively The average hospital stay of patients who received a perineal injection was four to seven days

Of 34 patients who were given injections of Au^{198} in doses of 45 to 180 mc 9 died of their disease, 10 are living and have extensive carcinoma locally as well as in distant organs, and 15 are living and doing well after the injection, having been followed up for periods up to two years The five patients who received intraprostatic injections of P^{32} in doses of 21 5 to 39 mc showed little response symptomatically Rectally, the prostate remained hard, nodular, and fixed, with little of the softening and shrinking often observed after gold injection Two of these five patients had serious hematological complications Of the five patients who were given intraprostatic injections of Yt^{90} in doses of 10 5 to 39 mc, one died of extensive carcinomatosis 10 days after the injection, death did not seem to have any relation to the injection Two patients still living were without subjective or objective improvement Two patients obtained clinical improvement, with findings of rectal softening and shrinking of the prostate

Blood levels of isotope reached a peak within the first three minutes after the injection and were surprisingly high in some patients Autopsies performed on seven patients treated with injections of Au^{198} showed local destruction of the tumor and healing by fibrosis, but this effect did not include the entire tumor mass, and there was little lymph node destruction The authors believe that interstitial irradiation with Au^{198} is potentially an effective and safe method of destroying prostatic carcinoma, but, as employed at present, it is not a curative method Results comparable to those obtained with Au^{198} are obtainable with Yt^{90}, which emits only beta irradiation of great energy and is much safer for patient and operator because of the absence of gamma rays Further studies with this isotope are warranted

Diagnosis of Intermittent Hydronephrosis Importance of Pyelography During Episodes of Pain R M Nesbit J Urol 75 767-771 (May) 1956 [Baltimore]

A 44-year-old woman was studied because of recurrent attacks of pain in the left upper abdominal quadrant accompanied by nausea and vomiting All studies including normal excretory urograms failed to reveal the cause of her pain While still in the hospital she had one of her attacks, which was believed to be typical of Dietl's crisis Cystoscopy was performed during the attack and retrograde pyelograms were made, which revealed the presence of a dilated renal pelvis not present the day before Operation revealed an aberrant vessel, which was the cause of the disorder After this experience the author advised repeated excretory urograms during an attack of pain in any patient suspected of having intermittent hydronephrosis whose original pyelograms were normal Three illustrative cases are described that show the value of pyelography during an attack of pain Patients who suffer from attacks of intermittent hydronephrosis may have pyelograms that are entirely normal between attacks In such patients the urologist will miss the diagnosis completely if he assumes that normal pyelograms exclude the diagnosis of intermittent hydronephrosis The procedure of getting repeated excretory urograms during an attack of pain may cause inconvenient delays in many cases, but it has resulted in establishing a diagnosis of intermittent hydronephrosis in many others It also made it possible to exclude the diagnosis in patients in whom normal pyelograms were made during typical attacks of pain

Urologic Pathology Mimicking Intra Abdominal Conditions C L Wilson and M C Wilson Am Surgeon 22 372-381 (April) 1956 [Baltimore]

The wide variations in clinical syndromes that may arise from disease in the urinary tract and their possible similarity to symptoms usually originating in other abdominal organs can be understood if we bear in mind the fact that the upper urinary tract has almost identical innervation with the gastrointestinal tract, both systems contain hollow viscera capable of producing colicky pain on obstruction and the kidneys and ureters are in close association with the parietal peritoneum Unsuspected urologic lesions can simulate diseased conditions of any abdominal organ The authors present histories of 10 patients whose urologic disorders simulated such conditions as appendicitis, ileus colitis gallbladder disease, blackwater fever stomach ulcer liver disease postpartum sepsis and tubal pregnancy These case histories emphasize the following facts 1 A normal urine does not rule out serious urologic disease 2 Careful history taking and physical examination may be of little value or at times misleading 3 An intravenous pyelography may frequently settle the issue in 30 minutes or less It may be done without preparation and does not cause a critical delay even in an acute abdominal emergency 4. Intravenous pyelography should be a routine procedure in any patients with abdominal complaints when the diagnosis is obscure

THERAPEUTICS

The Effect of Parahydroxypropiophenone on Patients with Hyperthyroidism F Del Regno Riforma med 70 469-473 (April 28) 1956 (In Italian) [Naples Italy]

The author studied the effects of parahydroxypropiophenone on 10 patients with mild hyperthyroidism Their ages ranged from 20 to 45 years Seven were women and three were men Tachycardia, tachypnea, hyperexcitability, psychic instability tremor exophthalmos loss of weight, and some fever were present in all the patients The basal metabolic rate was +20% to +30% The dosage of the drug was 3 gm a day for the first 10 days and 2 gm a day for the next 20 days Other sedatives were combined with the drug in a few cases The diet was complete but low in animal proteins The patients were not allowed to smoke or drink alcohol or coffee Reduction in the volume of the thyroid gland and of the exophthalmos followed in all patients Tachycardia, hyperexcitability psychic instability and tremor were little affected The drug did not affect the fever or the body weight The basal metabolic rate decreased but did not become normal Iodemia decreased markedly The values of specific dynamic action were decreased in some of the patients The drug had no effect on the calcemia or on the phosphoremia. The best effect of the drug was in reducing the size of the gland an effect not obtained with any other drug The combination of the drug with thiouracil had a positive effect in the treatment of exophthalmic goiter especially if given prior to surgical treatment

Study on the Effect of Overdoses of Pentylenetetrazol and Barbiturate Combinations in Human Volunteers J F Fazekas L R Goldbaum T Koppanyi and J G Shea Am J M Sc 231 531-541 (May) 1956 [Philadelphia]

In a previous study it was shown that the ingestion of large doses of pentylenetetrazol and pentobarbital sodium combinations delayed the onset of sleep and produced no untoward effects The present study was undertaken to determine (1) the relative toxic effects on humans of combinations of pentylenetetrazol with pentobarbital sodium secobarbital sodium and phenobarbital sodium respectively (2) the duration of action of these combinations as evidenced by clinical signs and blood levels and (3) the protective effect afforded by pentylenetetrazol in these combinations In addition large doses of pentobarbital alone were administered to a control group of volunteers to illustrate more clearly the magnitude of the protective effect of pentylenetetrazol when taken simultaneously with barbiturates

The authors emphasize the following points 1 The ingestion of from 1 300 to 2 000 mg of pentobarbital simultaneously with three times the amount of pentylenetetrazol produced no anesthesia nor severe central depression in human volunteers The ingestion of from 800 to 1 000 mg of pentobarbital alone however usually resulted in marked central nervous system depression and, in most persons light surgical anesthesia. 2 Pentobarbital was absorbed more rapidly from the gastrointestinal tract than fixed mixtures of pentobarbital and pentylenetetrazol. 3 The rate of disappearance of pentobarbital from the blood was the same in both groups about 1.5% of the ingested dose per hour 4 Subjects ingesting secobarbital in doses of 1 300 to 1,500 mg with three times the amount of pentylenetetrazol showed no signs of marked barbiturate depression The rate of fall of the blood levels was about 2.5% per hour 5 Subjects ingesting phenobarbital in doses of 2 000 to 4 100 mg with one and one-half times as much pentylenetetrazol were only sedated and could easily be aroused The rate of disappearance of this barbiturate from the blood was about 0 7% per hour 6 Many subjects who took the barbiturate-pentylenetetrazol combinations vomited, indicating denarcotization of the vomiting mechanism 7 The control experiments as well as published reports, indicate that pentylenetetrazol is an efficient preventative when taken simultaneously with coma-inducing or possibly fatal doses of barbiturates 8 Pentylenetetrazol given in these combinations and in the above stated dose ranges did not produce convulsions Therefore, in human subjects, under the above conditions, pentylenetetrazol and barbiturates are mutually antagonistic

The Response to Rescinnamine Administered Parenterally and Orally for the Treatment of Hypertension R L Hershberger E W Dennis and J H Moyer Am J M Sc 231 542-557 (May) 1956 [Philadelphia]

Originally it was thought that reserpine was the only alkaloid derived from Rauwolfia serpentina with an antihypertensive effect, but since the known compounds accounted for less than 50% of the activity of alseroxylon (Rauwiloid) additional active principles were searched for in the amorphous portion of this preparation Klohs and his co-workers succeeded in extracting the trimethoxycinnamic ester of methyl reserpate that has been designated rescinnamine Twenty six hypertensive patients were given rescinnamine by parenteral injection They had been given placebos for a month and during this period their control blood pressure levels were established Then each patient received parenteral injections of rescinnamine followed by supine and upright blood pressure determinations every 30 minutes for the ensuing 6 to 24 hours In patients who participated in two or more tests, the test periods were separated by one or two weeks during which time placebos were given Several patients received the drug intravenously in 200 ml of dextrose solution and the remaining patients received the drug by intramuscular injection No difference in response between the two routes of administration was observed In order to establish the optimal therapeutic dose, increasing doses of the drug varying from 2.5 to 15 mg were given

Blood pressure response and evaluation of side-effects established the optimal dose to be 10 mg when given parenterally Of 20 patients who received this dose 18 showed a significant reduction in mean arterial pressure within five hours after administration of the drug 14 became normotensive Eighty four hypertensive patients received rescinnamine by mouth on an outpatient status over a period of two months or more Forty of the 84 patients treated for two months showed a significant reduction in pressure at the end of this time and over half of those treated for four months or more showed a significant reduction in mean arterial pressure The response to the drug was not necessarily dependent on the severity of the hypertension but, of the patients who became normotensive only three were from the group with the more severe hypertension Rescinnamine is equally as effective in the reduction of blood pressure as reserpine Its administration is accompanied by much the same qualitative side-effects as noted after reserpine but the severity of some side-effects was less

PATHOLOGY

Four Cases of Death in BCG-Vaccinated Persons, Apparently Due to Vaccination F Van Deinse Hospital 49 431-438 (April) 1956 (In *Portuguese*) [Rio de Janeiro, Brazil]

Four deaths in infants, children, and adolescents vaccinated with BCG were reported in the literature between 1950 and 1954 Vaccination was apparently the cause of death No previous deaths as a result of tuberculosis in vaccinated persons have been reported The author investigated the conditions common to all the patients, in all of whom the tuberculin reactions were weak, transient, or negative Cultures prepared with material from the patients' lesions, pathological exudates, or material from a gastric lavage behaved in culture media and when inoculated to guinea pigs as if they were cultures of Mycobacterium tuberculosis Antibiotic treatment failed The results of histological examination of biopsy or autopsy material did not show typical lesions of tuberculosis The author believes that the cause of the aforementioned deaths was a reticuloendotheliosis Myco tuberculosis (if they appeared in the pathologic material) had only the significance that Hemophilus influenzae has when appearing in the course of influenzal pneumonia or Salmonella suipestifer in the course of hog cholera Contamination with virulent Myco tuberculosis in these patients may have occurred prior to the administration of the vaccine, such as has occurred in cases of tuberculous meningitis that develop in the first few months following BCG vaccination

Acute Focal Appendicitis J R Schenken, T R Anderson and F C Coleman Am J Clin Path 26 352-359 (April) 1956 [Baltimore]

Not infrequently the pathologist fails to find histopathological changes in a surgically resected vermiform appendix from a patient with typical symptoms and signs of acute appendicitis It has been suggested that these apparent discrepancies may result in part from variable histopathological techniques In routine histological sections of resected appendixes from patients with a clinical diagnosis of acute appendicitis, the authors repeatedly observed purulent material in the lumen without demonstrable exudate in the mucosa or wall of the appendix They called this condition "acute focal appendicitis" They describe observations on 2,750 appendixes studied during 1952 and 1953 In appendixes examined before 1952, the tip was bisected longitudinally in order to examine the luminal contents, but these were frequently dislodged and lost during processing The method of longitudinally incising the appendiceal wall and rolling the flattened organ was also inadequate inasmuch as preservation of luminal contents is necessary for recognition of acute focal appendicitis During 1952 and 1953 all appendixes were cross sectioned and five tissue blocks obtained, i e , three from the tip, one from the body, and one from the proximal end Of the 2,750 appendixes sectioned, 32 8% showed evidence of acute focal appendicitis The clinical correlation with the pathological lesion of acute focal appendicitis was similar in all respects to that reported in acute diffuse suppurative inflammation of the appendix Follow-up studies one to three years after appendectomy indicated that the symptoms and signs for which the operation was performed were completely relieved The authors conclude that histological examinations that disregard exudate in the lumen with no inflammation in the wall of the appendix may lead to unnecessary and unjust criticism of a conscientious and competent surgical staff

PUBLIC HEALTH

Soil Nitrification and Nitrates in Waters E L Schmidt Pub Health Rep 71 497-503 (May) 1956 [Washington, D C]

Young infants, usually less than 2 months old, have acquired methemoglobinemia as a result of ingesting water high in nitrates The ingested nitrate may oxidize a portion of the hemoglobin to methemoglobin with consequent loss in oxygen transport and oxygen exchange in the blood If severe, the anoxemia may produce serious effects, and death may occur Methemoglobinemia induced by well waters high in nitrates have been reported principally in the midwestern United States and the central Provinces of Canada Although the high nitrate content of most of the wells studied apparently was associated with nearby sources of pollution, the origin of the nitrates that accumulate in ground waters was not always clear In order to investigate the possible relation between nitrate production in soil and nitrate concentration in waters, data on 39 water supplies from 26 sites in four counties of Minnesota were obtained Samples of 59 surface soils and 50 subsurface soils associated with these waters were studied in the laboratory for nitrate content The surface soils were also studied for capacity to produce nitrates The 16 water supplies that were sampled a second time during the summer gave evidence that the nitrate content of the water supplies fluctuated significantly during a five-to-six-week period. These fluctuations were considered to be due largely to soil leaching associated with the rainfall distribution Changes in the nitrate content of the surface soils correlated well with changes in the nitrate content of the water supplies The nitrifying capacities of the soils remained essentially constant for the two samplings Soils contaminated with organic nitrogen by livestock had the highest nitrifying capacities The water supplies with the highest concentrations of nitrate (75 to 130 ppm) were located near such soils, but not all water supplies near contaminated soils had unusually high nitrate content Normal field soils in pastures, sod, or fields under cultivation near the very high nitrate waters were generally much lower in nitrifying capacity, but many of the normal field soils exhibited high nitrifying capacity despite the absence of abnormal additions of organic nitrogen Such field soils were associated with subsoil drainage waters of up to 18 ppm of nitrate nitrogen and well waters of up to 35 ppm of nitrate nitrogen It seems possible that soils of very high nitrifying capacity may sometimes contribute to the nitrate content of water supplies ordinarily considered to be satisfactorily located

Continued High Incidence of Diphtheria in a Well-Immunized Community W J Murphy, V H Maley and L Dick Pub Health Rep 71 481-486 (May) 1956 [Washington, D C]

The continued high incidence of diphtheria in Hall County, in north Georgia, is of interest in view of the general decline throughout the United States and in most areas of Georgia Although a variety of factors may have contributed to the Hall County experience, this study was concerned primarily with the extent of active immunization, the prevailing strain of Corynebacterium diphtheriae, and the frequency with which clinical infections occurred among the immunized It was found that from 1935 to 1953 the incidence of diphtheria in Hall County failed to decline in spite of a well-organized immunization program A study based on a sample of live births indicates that at least 60% of the infants born in the county received an immunizing agent against diphtheria by the time they were one year old and nearly 100% of the children were immunized by the time they were 6 years old A review of the cases of diphtheria reported from 1949 to 1953 indicated that active immunization afforded an appreciable degree of protection Of the cases observed among previously inoculated children, the great majority occurred after inadequate dosage or after protection had been permitted to lapse The high diphtheria incidence in Hall County may be associated with an unusually aggressive strain of C diphtheriae Since October, 1948, when routine typing was begun, more than 90% of the cultures from that county and almost 70% of the cultures from neighboring counties have been gravis strains The clinical manifestations of the disease have not been unusual, and case fatality rates have not been excessive, even among the unimmunized The association of a gravis strain with the continued high incidence of diphtheria in Hall County is not necessarily peculiar to that type of C diphtheriae. Presumably, other types might be involved elsewhere in similar situations

BOOK REVIEWS

Epitome of the Pharmacopeia of the United States and the National Formulary with Comments Issued under direction and supervision of Council on Pharmacy and Chemistry of American Medical Association Tenth edition Cloth. $3 Pp 322 J B Lippincott Company 227 231 S Sixth St., Philadelphia 5 2083 Guy St., Montreal Canada, 1955

This publication of the Council of Pharmacy and Chemistry of the American Medical Association was first issued in 1907 as the Physician's Manual of the U S Pharmacopeia and National Formulary Nine years later the title was changed to its present form The original title was perhaps more descriptive of the contents since in addition to being a precis of the two official publications, it contains details of dosage actions and uses of drugs and draws attention to the shortcomings of certain preparations Because of a reduction in the amount of small type the typography is more pleasing than in previous editions There is *a good index and a useful series of tables of weights and meas*ures This book, with New and Nonofficial Remedies should serve practicing physicians as a useful source of information concerning drugs in everyday use

Allergy in Childhood By Jerome Glaser M.D Assistant Professor of Pediatrics University of Rochester School of Medicine and Dentistry *Rochester New York Publication number 272 American Lecture Series* monograph in Bannerstone Division of American Lectures in Allergy Edited by Max Samter M D Chief Allergy Clinic Research and Educational Hospitals University of Illinois Chicago Cloth $12 50 Pp 529 with 42 illustrations Charles C Thomas Publisher 301-327 E Lawrence Ave Springfield Ill Blackwell Scientific Publications Ltd 24 25 Broad St. Oxford England Ryerson Press 299 Queen St W Toronto 2B Canada 1956

Although this textbook covers virtually every allergic manifestation many subjects are covered in an uncritical fashion since the chapters are essentially reviews of selected articles which *themselves are not necessarily representative On some other* aspects the author is definitely opinionated For example wool clothing or a rabbit s foot in a child s pocket are mentioned seriously as causes of allergy Feeding of cow s milk to infants from families with a history of allergy is blamed for a fourfold increase of allergy in childhood to other allergens such as pollen and dust No satisfactory explanation for this phenomenon is offered An unnecessary number of long case reports pads the book In the introduction the author says "For those who wish to enter pediatric allergy it assumes a preliminary knowledge of the subject For this reason the text does not go into detail concerning phases of theory and practice of allergy It is difficult to see how even for such a restricted group of readers, one can justify omitting the highly essential basic knowledge of antigens and antibodies the modern and exciting developments that are going on in many research institutions and the elementary data about such items as pollens molds and other allergens so vital to practical allergy

Impartial Medical Testimony A Report by a Special Committee of the Association of the Bar of the City of New York on the Medical Expert Testimony Project Cloth $3 95 Pp 188 The Macmillan Company 60 Fifth Ave New York 11 Macmillan Co of Canada Ltd 70 Bond St., Toronto 2 Canada 1956

Between December 1952 and December, 1954 a Medical Expert Testimony Project was conducted in metropolitan New York The idea was conceived by the justices of the Supreme Court of New York County, who were concerned about the problem inherent in the practice of presenting medical evidence solely through partisan experts hired by the parties to law suits With the cooperation of the judiciary, the Bar Association of the City of New York, the New York Academy of Medicine, and the New York County Medical Society a program was devised to reduce "the battle of experts" Essentially the plan *sought to solve two problems finding impartial medical experts* and making them available and establishing a procedure for selecting cases in which the program might be helpful The results are reported in this book which includes a history of the proposal mention of the way in which the project s financing was accomplished how the plan developed on paper, how it was finally put into practice and how it operated. The bulk of the report discusses the experiences under the project thoroughly and with adequate case reports Little actual experience encountered in the trial of the project is omitted The project is described objectively and its merits and faults are given with proper emphasis Nowhere does the report suggest that a panacea has been found to eliminate the expert testimony problem Another section of the book includes a report prepared by the medical consultants and contains frank comments by them concerning the use and effect of the project The report is supplemented by a number of exhibits which include discussions of the project by judges and medical experts who formed panels of witnesses Notes on cases reviewed by the consultants to the committee are also included The mechanical steps of the project such as instructions to attorneys information for specialists certification of physicians bills and the range of the medical fees are also well covered in exhibits Because of the report s objectivity and because of the exhibits the book should be read by all who are interested in improving the legal situation that exists in our courts when physicians are called on to *express their opinions as experts on medical matters in adversary* proceeding

***Color Atlas of Oral Pathology Histology and Embryology Developmental* Disturbances Diseases of the Teeth and Supporting Structures Diseases of the Oral Mucosa and Jaws Neoplasms *Prepared under auspices* of U S Naval Dental School of National Naval Medical Center Bethesda Md Cloth $12 Pp 188 with 461 illustrations in color J B Lippincott Company 227 231 S Sixth St., Philadelphia 5 2083 Guy St Montreal Canada 1956**

This atlas is well organized of handy size and profusely illustrated the accompanying text is concise and authoritative The material is grouped into five sections covering histology and embryology developmental disturbances diseases of teeth and supporting structures diseases of the oral mucosa and jaws and neoplasms In general diseases with similar causes are grouped together and others are arranged according to anatomic site Each page contains three uniformly sized illustrations with a brief descriptive text containing a precise definition of each entity a description of the illustrations both histological and gross and other pertinent information There are 20 pages of references the index appears to be complete The book should appeal to student teacher and clinician for it is an excellent graphic reference guide

The Biliary Tract with Special Reference to the Common Bile Duct By Julian A Sterling A B., M D., M Med.Sc., Staff Surgeon, Albert Einstein Medical Center and Graduate Hospital, Philadelphia. Cloth $10 Pp 424 with 94 illustrations. Williams & Wilkins Company Mount Royal and Guilford Aves Baltimore 2 1955

This book is primarily concerned with diseases of the common bile duct and the papilla of Vater and their management The author has covered these subjects exhaustively often drawing on his own personal studies and experiences The chapters on anatomy and physiology are particularly outstanding and include much new material Since the author is a surgeon the subject of surgical management is treated at full length and the chapter on anesthesia is good Radiology is also well covered Other aspects of the subject as well as the related fields such as the gallbladder pancreas and liver are *discussed in a rather cursory fashion and often in outline form* The book is well illustrated references are selected Some chapters are well done but others are superficial and poor reading The book can be recommended to those *interested in* the primary subject

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These book reviews have been prepared by competent authorities but *do not represent the opinions of any medical or other organization unless* specifically so stated

QUERIES AND MINOR NOTES

SORE THROAT

To the Editor —*A 40-year-old man has complained of sore throats for three or four months Throat cultures were taken, and Streptococcus viridans was isolated The patient was then given one million units of penicillin daily for three days, and on the fourth day he was given a single dose of 1,200 000 units of Bicillin intramuscularly Two weeks later a throat culture was repeated and Str viridans was again isolated What therapy and what dosage is now suggested?*

Paul Russell, M D , Inglewood, Calif

Answer —Sore throat is a generic term that could be a sign or a symptom of a variety of pathological states It would be important to have additional information other than the bacterial one, such as a more exact description of the mesopharynx, as well as the pharynx, nasopharynx, and hypopharynx, knowledge of the presence or absence of fever, the blood cell count, the sedimentation rate, the heterophil antigen index, and such data that would constitute a thorough understanding relative to the sources of sore throat The presence of Streptococcus viridans in a pharynx or nasopharynx is not to be considered overly significant inasmuch as this organism is normally present in the bacterial flora It is quite possible that certain causes of sore throat have been overlooked by concentrating on this insignificant finding Therapy would, therefore, be dependent on a more exact diagnosis Either penicillin would need to be given over a longer period of time or additional "sulfa" medication should be given in conjunction, if basically the problem was bacteriological

RHEUMATOID ARTHRITIS

To the Editor —*Should corticotropin (ACTH) be given in the long-term treatment of rheumatoid arthritis with prednisone (meticorten)? If so please state the dosage of corticotropin On the day the patient receives corticotropin should meticorten therapy be discontinued?* *M D , Ohio*

Answer —Some investigators have advised injections of corticotropin during prolonged administration of corticosteroid for treatment of rheumatoid arthritis When used in this way, corticotropin usually is injected intramuscularly in the form of a slow-absorbing preparation, such as corticotropin in gelatin or zinc-corticotropin, three or four times weekly in doses of 20 or 30 units It is used to supplement, not substitute for, the corticosteroid therapy is continued uninterruptedly

The rationale for such combined hormone therapy is to prevent or lessen the adrenocortical suppression that results from prolonged administration of adrenocortical hormone Since adequate corticosteroid therapy alone will accomplish antirheumatic effects comparable to combined hormone therapy, prevention of suppression of adrenocortical function would be the only advantage of combining corticotropin and steroid therapy But is this a significant advantage? There is no problem because of adrenocortical suppression during corticosteroid therapy, except during added stress such as in surgery or emotional shock, in such an emergency added corticosteroid is required and probably would be wise even when corticotropin supplements the steroid therapy and cortical suppression is important only for a short period after steroid administration is stopped Permanent hypofunction of adrenal cortices does not result from prolonged corticosteroid administration, cortical function quickly becomes adequate for all but stress circumstances A short period of corticotropin administration at the end of prolonged corticosteroid therapy hastens the recovery of cortical activity Most investigators and experienced rheumatologists consider the practical difficulties imposed by the requirements of intramuscular injections of corticotropin during prolonged corticosteroid therapy more objectionable than the possible beneficial effects Cortical suppression that may occur during prolonged corticosteroid therapy can readily be compensated for by added corticosteroid administration and can be quickly restored by a short period of corticotropin therapy when prolonged corticosteroid administration is stopped Consequently, the majority of students of rheumatoid arthritis administer corticosteroid therapy alone for prolonged periods of time to patients with rheumatoid arthritis rather than use combined hormone therapy

ETHYLENE GLYCOL POISONING

To the Editor —*What is the treatment for an acute case of ethylene glycol poisoning (drinking permanent antifreeze)? What is the lethal dose? Have there been any survivals from ingestion of ethylene or propylene glycol? Would there be any logical hope for a 22-lb (10 kg) child under 2 years of age who ingested over 500 cc of antifreeze? The child was seen within one-half hour after the accident, at which time the stomach was washed she was treated vigorously symptomatically, i e , combating coma and acidosis Is there some information as to the rate of absorption of the compound from the gastrointestinal tract?* *M D , Illinois*

Answer —There have been many recoveries after ingestion of ethylene or propylene glycol, the latter being far less toxic The minimal lethal dose of ethylene glycol approximates 1 4 cc per kilogram of body weight Thus the calculated minimum lethal dose for a 22-lb child is near 14 0 cc , assuming that a child's tolerance is as great as that of an adult The sites of fatal damage may be the central nervous system, leading to respiratory failure, and the renal system The detoxication products of ethylene glycol are glycolic and oxalic acids, although little of such acids may be detected in urine For propylene glycol the detoxication ultimates are lactic acid and glycogen, manifestly less damaging Symptoms may be delayed, since the absorption rate distinctly is slow Treatment after oral intake includes prompt gastric lavage, establishment of diuresis, and, at times, oxygen therapy In the presence of pronounced renal congestion, renal decapsulation may be in order Recovery in a small child after an intake of 500 cc is scarcely to be expected, but stark hopelessness is not conceded as inevitable

INTESTINAL HEMORRHAGE AND TARRY STOOLS

To the Editor —*What chemical or digestive action in the gastrointestinal tract turns blood black? At what level in the gastrointestinal tract does bleeding remain red?*

Erwin R Kaback M D , Otisville N Y

Answer —As a rule a tarry stool indicates bleeding high in the gastrointestinal tract, usually above the level of the ileum Experimentally the oral ingestion of at least 50 to 100 cc of blood is necessary to produce a tarry stool It is also an indication that the blood must enter the small intestine, or higher, and not be passed for at least 8 to 10 hours for the full tarry color to develop Blackness of the stool is believed to be from certain hemoglobin derivatives protoporphyrin and deuteroporphyrin Reduction of the hemoglobin to hemin and the release of the iron is probably the chief source of the tarry stool It is thought, however, to be due to a combination of the iron released and the porphyrins present The last half of the question is difficult to answer Of course, bleeding from a lesion in the left half of the large intestine is usually red This may not always be so On the other hand, a severely bleeding peptic ulcer of the duodenum may result in the passage of large amounts of red blood This is dependent on the rapidity with which the blood passes through the intestinal tract It can be said, however, that if the bleeding is red it is probably from some lesion below the lower part of the ileum

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The answers here published have been prepared by competent authorities They do not, however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address but these will be omitted on request

OTOSCLEROSIS

To the Editor.—*A patient who has marked impairment of hearing diagnosed as otosclerosis has fairly satisfactory hearing with a hearing aid. She was examined for the possibility of improvement by the fenestration operation, but the prognosis was not promising. She now inquires about the procedure advocated by some otologists in place of the fenestration operation, called stapes mobilization. May I have some information about this operation?*

Benjamin Trachtman, M.D., Brooklyn, N. Y.

Answer.—Stapes mobilization has proved of value in certain cases of otosclerosis where it is possible to break the fixation by direct manipulation without fracturing the crura of the stapes. Unfortunately, the results of this procedure in any one case are quite unpredictable, since there is no way of knowing how extensive the fixation is until the middle ear has been exposed at surgery. Statistically, the procedure has been successful in obtaining a useful hearing improvement in about 30% of the cases. The operation has the advantage of simplicity and minor incapacitation for a few days. It has the further advantage of being applicable in cases of otosclerosis with moderate cochlear nerve deterioration where fenestration is no longer indicated. In cases ideally suited for fenestration the latter procedure is far more dependable. However, the stapes mobilization can still be used as a preliminary procedure, with subsequent fenestration in the event of failure. Both operations are technically exacting and require more than ordinary proficiency and experience for satisfactory results.

PRESERVATION OF COAGULATION FACTORS

To the Editor.—*What is the rate of destruction in banked blood and plasma of the factors of blood coagulation? Specific reference to disease states of hypoprothrombinemia, hemophilia, thrombocytopenia, plasma thromboplastin component deficiency (Christmas disease), and allied syndromes are desired.*

Howard Rapp, M.D., Auburn, N. Y.

Answer.—The preservation of factors affecting coagulation in stored blood and plasma is highly complex. Recognizing the limitations of present knowledge and techniques, the survival of various coagulation factors in vitro may be summarized as follows. In hemophilia the defect is in antihemophilic globulin (AHG). When whole blood is collected in an anticoagulant acid citrate-dextrose solution and stored at about 4 C, about 50% of the antihemophilic globulin is lost within the first 12 hours. This globulin fraction is very stable, however, in plasma frozen or dried from the frozen state. Since normal clotting will generally occur with as little as a 20% of the normal antihemophilic globulin plasma level, some benefit may be derived from blood stored for two to three days. The material of choice, however, is fresh whole blood used within 12 hours of collection, or plasma prepared from fresh blood that is frozen, stored in the frozen state at 20 C or below, or dried from the frozen state. In plasma thromboplastin component deficiency (Christmas disease) the hemorrhagic tendency is due to a deficit of plasma thromboplastin component (PTC). This is a very stable globulin fraction, and the use of blood stored for three or four weeks or of frozen or freeze-dried plasma is highly satisfactory. In parahemophilia (Owren's disease) the defect is in the plasma labile factor, which plays a part in the conversion of prothrombin to thrombin. Only the use of fresh whole blood or fresh plasma, or of frozen or freeze-dried fresh plasma, will supply the patient with significant amounts of this fraction. The conditions of collection of the blood greatly affect the stability of the labile factor, and excessive foaming, poor mixing with anticoagulant, and slow chilling will cause more rapid deterioration.

In regard to states of hypoprothrombinemia, it may be desirable to supply prothrombin to the patient in cases of emergency. The determination of prothrombin by the one-stage method of Quick, as generally performed in the routine laboratory, is dependent on the level of plasma prothrombin as well as the labile and stable factors that generally are not considered as separate entities. In the storage of whole citrated blood at 4 C the prothrombin time falls to levels of 40 to 50% by the end of the first week but considerably more slowly after that. This is chiefly due to the rapid loss of the labile factor. In fresh-frozen plasma, less than one-day old at the time of freezing or freeze-drying, normal prothrombin content is preserved for many years. Plasma dried from the frozen state and restored with distilled water shows almost complete loss of prothrombin activity after short periods of time. Restoration of the plasma with 0.1% citric acid yields prothrombin times that are much more satisfactory, usually over 50%. From the clinical standpoint, in vivo prothrombin activity will be much higher because of the labile factor that the patient generally has in his own plasma and that is not accounted for when doing in vitro testing of stored material. In effect, prothrombin itself remains at satisfactory levels (over 50%) for up to 20 to 30 days in whole blood storage and almost indefinitely in frozen or freeze-dried plasma. In acute thrombocytopenic state, when danger of hemorrhage exists, transfusion of fresh viable platelets is the remedy of choice. An evaluation of therapeutic results is not possible at present; plastic containers should be used, and the whole blood or platelets-rich plasma should be used immediately. Some results in thrombocytopenia have been obtained with plasma prepared and stored in the manner indicated for hemophilia. Fibrinogen is relatively stable in storage and is contained in satisfactory amounts in whole blood for up to 7 to 14 days of storage or in frozen or freeze-dried plasma.

ALLERGY TO PENICILLIN

To the Editor.—*Can you give me the names of injectable penicillin preparations that have been investigated and found suitable to give to people who have allergic backgrounds?*

Martin Karr, M.D., San Mateo, Calif.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Most of the critical observations and investigations indicate that allergy to one type of penicillin presupposes an allergy to others. Neither from the standpoint of an already existing allergy to penicillin nor from the standpoint of potential initiation of allergy does it make any material difference as to which preparations of penicillin are used.

Answer.—There are no penicillin preparations in use that do not cause allergic reactions in some individuals, but these are rarely anaphylactic and still more rarely fatal. Such reactions occur even in those who have not had contact with penicillin before, but the frequency of allergic reactions is greater in those whose previous penicillin exposure may have caused sensitization and in those with an "allergic background." There are two types of penicillin on the market that have been shown to be associated with a decreased incidence of allergic reactions but not to be free from them. One of these is penicillin O (Cer-O-Cillin), which may be obtained in oral, soluble injectable, and repository injectable (chloroprocaine penicillin O) forms. The other is L-ephenamine penicillin G (Compenamine), which, on injection, acts as a repository type. It would be logical to use such types of penicillin in allergic individuals, although great care would still have to be taken, particularly if previous penicillin reactions had occurred, in which case other antibiotics might be used.

PORPHYRIA

To the Editor.—*Is the Watson-Schwartz test for porphobilinogen specific for porphyria? Is it usually positive for both the hepatic and erythropoietic forms?*

Martin N. Frank, M.D., Glenside, Pa.

Answer.—The Watson-Schwartz test for porphobilinogen is indicative of porphyria. According to some of the laboratory textbooks on clinical diagnosis, it is specific for acute idiopathic porphyria, but, in order to definitely identify type 3 uroporphyrin and coproporphyrin, spectroscopic methods are required. Most of the cases reported in the literature have been identified and diagnosed mainly by the demonstration of a chloroform-insoluble chromogen with Ehrlich's reagent—the Watson-Schwartz test. This test is usually positive for both the hepatic and erythropoietic forms, but if the erythropoietic form is suspected spectroscopic examination is demanded.

TUBERCULOSIS OF ANKLE

To the Editor —*A 20-year-old girl with a swollen ankle that is painful on walking showed the following results on x-ray examination on Feb 3, 1956 (1) diffuse capsular swelling of the left ankle, more obvious on the medial side than on the lateral side, (2) a diffuse "ground-glass" appearance of the bones about the ankle joint, particularly of the lateral nonarticular margins of these bones, and (3) considerable periosteal new bone formation along the medial and anterior surface of the distal portion of the tibia The mortise of the ankle joint is essentially normal Results of the study on this date did not particularly indicate tuberculous arthritis, although clinical diagnosis indicated it On Feb 10 reexamination of the left ankle showed further periosteal new bone along the medial and anterior margin of the distal portion of the tibia just above the medial malleolus There was a moderate amount of notching involving the anterior portion at the joint space of the tibia and radiolucency of the opposite portion of the astragalus, suggesting osteomyelitis at these sites A general ground-glass' appearance of the tibia and astragalus at their adjacent articular surfaces and marked joint effusion and soft tissue swelling along the medial malleolus were present No material was obtained on aspiration of the joint space, but the subcutaneous effusion showed a few acid-fast bacilli This material was injected into a guinea pig and cultured The tuberculin patch test was positive This patient is five months pregnant Her chest x-ray is negative for tuberculosis The urine is microscopically clear She weighs 120 lb (54 4 kg) She has had 1 gm of streptomycin daily for one week, now she receives it twice weekly She is also on therapy with 100 mg of isoniazid three times a day and 1 gm of aminosalicylic acid three times a day A cast has been applied Please comment on the dosage, the length of time it should be continued and the length of time the cast should remain on*

George L Morrissey M D Davenport Iowa

This inquiry was referred to two consultants whose respective replies follow —Ed

Answer —This patient has tuberculosis of the ankle, and there is now evidence of osteomyelitis in the x-ray findings Pregnancy complicates her condition One gram of streptomycin once a week together with isoniazid and aminosalicylic acid as presently given is the correct dosage, it should be continued for at least one year At termination of pregnancy, dependent on x-ray evidence and progress of the case as far as soft tissue is concerned, decision should be made as to whether arthrodesis of the ankle is indicated There are a number of cases of major involvement of soft tissue that respond to drug therapy, but if progressive osteomyelitis has occurred, surgical intervention is indicated This can await the termination of pregnancy in a normal manner, with the patient kept under the drug therapy The question might be raised as to whether streptomycin might cause deafness in the newborn infant, although this dosage is not likely to disturb the adult

Answer —Tuberculosis of the ankle with diffuse synovial involvement and evidence of erosion in both the tibia and astragalus will not be cured or arrested by the drugs mentioned above The dosages seem adequate and will probably bring this young woman through her pregnancy The cast should remain on during this period After the obstetric phase has been concluded, this ankle should be fused surgically, under the protection of the same drugs The end results of such fusions are good, and this method will shorten the time of her disability substantially

CARBOHYDRATES IN LEMON JUICE

To the Editor —*What is the amount of carbohydrate in frozen lemonade as purchased in stores?*

George H Hoxie, M D , Berkeley, Calif

Answer —In order to comply with United States standards published by the United States Department of Agriculture and effective Dec 19, 1953, frozen concentrate for lemonade must be "the product prepared from lemon juice and one or more nutritive sweetening ingredients" Frozen concentrate for lemonade, when prepared as lemonade, should test not less than 10 5 degrees Brix, according to the United States standards By this definition, prepared lemonade from frozen concentrate contains about 10% carbohydrate Fresh lemon juice without sugar is about 7 7% carbohydrate If it is diluted 1 to 4 with water, its carbohydrate amounts to about 2%

VITAMIN MINERAL SUPPLEMENTS

To the Editor —*I have been astounded by the prevalence of vitamin-mineral supplements for prenatal use containing calcium lactate instead of dibasic calcium phosphate Current opinion seems to indicate that an excess of phosphate favors the occurrence of leg cramps I have read the work of the Pages of California and the results of the clinical research by the group at the Margaret Hague Maternity Hospital, Jersey City, N J , but it is my impression that their results are inconclusive and statistically insignificant Should pregnant women be encouraged to increase their consumption of this new type of prenatal supplement and to decrease their consumption of milk as the authors suggest?*

Jerome Abrams, M D , Philadelphia, Pa

Answer —If pregnant women will eat a well-rounded diet every day, they will not have to take extra vitamins in capsule or tablet form except vitamin D, because this vitamin is found in only limited amounts in natural foods Likewise, extra minerals are seldom needed by women who eat a proper diet Even though there appears to be proof that large quantities of milk or dibasic calcium phosphate predispose to muscular tetany, pregnant women should drink a quart of milk daily If they have leg cramps they can obtain relief by adding small amounts of aluminum hydroxide gel to the diet in order to remove some of the dietary phosphorus from the intestinal tract They can also be helped by taking 10 mg of thiamine hydrochloride daily During an attack of pain, massage or standing on a cold floor may help

BEST TIME TO DO BLOOD SUGAR TESTS

To the Editor —*In discussions with different doctors about the best time to make blood sugar determinations in diabetic patients, nearly all of them maintain that it is the determination of the fasting blood sugar level that is the most valuable to the doctor I have always thought the blood sugar level would be the highest about two to two and one-half hours after a meal and that that was a good time to determine it Please discuss this*

M D , Indiana

Answer —The choice of time for determining the blood sugar level depends primarily on the purpose for which the blood sugar test is sought If the blood sugar level is to be used as an aid in the diagnosis of diabetes mellitus, then it should be emphasized that there are many patients with early diabetes mellitus in whom the fasting blood sugar level may be normal even though the patient will show moderate glycosuria and an elevation of the blood sugar level above normal when the blood and urine are tested at a period from one to two hours after a full meal containing 75 to 100 gm of carbohydrate For this reason, it has become the consensus of opinion that, in the attempt to discover diabetic patients the best time for testing both blood and urine is one hour after a meal, preferably breakfast Naturally if the patient does not take a sufficiently large breakfast even this test may not be satisfactory The second factor in the matter of diagnosis appears in the delayed return to normal of the blood sugar level after an adequate test meal Therefore, in some laboratories, the practice is to determine the blood sugar level two hours after either a normal meal or a test meal containing glucose and consider that if the blood sugar level has not returned to 100 mg per 100 cc (Somogyi-Nelson) or 120 mg per 100 cc (Folin-Wu) at the end of two hours this fact, together with glycosuria, is an indication of diabetes, which might not otherwise have been recognized if the fasting blood sugar level alone were determined In patients who are taking long-acting insulin, determination of the blood sugar level before breakfast may be of considerable value as evidence of the effectiveness of such an insulin as protamine zinc insulin in controlling hyperglycemia during the night

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LAST-MINUTE ACTION ON HEALTH BILLS

In its waning days, the 84th Congress completed action on three important health bills They will establish a national library of medicine, authorize construction grants for medical research facilities, and set up a program for federal assistance in training personnel in the health fields Another last-minute congressional action extended the Hill-Burton hospital construction program

Both the Senate and the House have given final approval to a bill creating a national library of medicine out of the present Armed Forces Medical Library and placing it under the direction of the Department of Health, Education, and Welfare instead of the Defense Department The bill was amended by the House Interstate and Foreign Commerce Committee so as to leave up to the 17-man board of regents created under the bill the decision on where to locate the library The original measure would keep the library in the Washington area Later a group of Illinois congressmen introduced bills placing it in Chicago The Congress thus side-stepped this issue and left its settlement for a later date

The Hill-Bridges bill for construction grants to nonfederal institutions doing medical research also has been sent to the President. When Senate and House conferees got together to work out differences in the two versions, this agreement was reached (1) the program for 30 million dollars a year for three years to start this fiscal year instead of next year and (2) grants to be made for research "in sciences related to health" rather than in the original and more restrictive concept of research for specified crippling diseases In order to assure funds this year, the administration sent a request for the first 30 million dollars to Congress in advance of final passage

The House on July 23 and the Senate on July 24 gave final approval to the "little omnibus" health bill with only a few minutes of debate, thus clearing it for the White House It authorizes traineeship grants for public health personnel and advanced nurses training and practical nurses training, plus mental health grants for special projects and a two-year extension of the Hill-Burton hospital program Here again, the administration, anticipating passage, asked for 5 million dollars for the traineeship sections of the bill

The Senate on July 20 and the House three days later approved a resolution inviting the World Health Organization to hold its 1958 World Health Assembly in the United States The measure also authorizes $400,000 to help finance the meeting which would be held on the 10th anniversary of the founding of WHO The House on July 23 cleared for the President a bill extending a portion of the Vocational Rehabilitation Act for one year This section provides grants to states to help them in planning and initiating rehabilitation projects

The President on July 18 signed the Boggs-Daniel bill stiffening penalties for peddling and smuggling narcotics and heroin, it became Public Law 728 The President on July 24 signed the bill authorizing the commissioning of osteopaths as medical officers, thus giving them equal status with physicians in uniform, it became Public Law 763

HIGH COST OF ANTIBIOTICS

The Federal Trade Commission has moved into a new phase of its investigation of the production of antibiotics and what it describes as "these drugs high cost to the consumer " The first phase involved conferences with industry leaders and medical experts "to determine the essential scope of the study and the best procedures to follow " In the second phase, manufacturers are asked to reply to a questionnaire covering the years 1948 through 1955 Included are specific questions on production and sales, prices for each of the principal dosage forms as well as bulk prices, manufacturers schedules of discounts, allowances and other conditions of sale, and a listing of all patents involving the manufacture of the particular antibiotic

The commission said it was taking the action because the publics interest was involved in two respects First, the public appreciates the great value of antibiotic drugs and wants them available at reasonable prices, second, the public will best be served "through continuing research and continuing incentives for the discovery and development of new uses and new antibiotics under the private enterprise system "

From the Washington Office of the American Medical Association.

Dr Quincy Adams, associate chief of the FTC's division of economic evidence and reports, is in charge of the study of antibiotics

INCREASED SALK VACCINE SUPPLY

With larger supplies of Salk poliomyelitis vaccine being released regularly, 32 states have extended the priority age through 19 The following developments in the vaccine situation have also been announced by the Public Health Service Because of more efficient production methods, the price of the vaccine has dropped to the extent that the PHS is able to return to the treasury $4,200,000 of the $28,700,000 appropriated earlier this year for the U S -state program

Because some states are using all the vaccine they can obtain, PHS made a survey of all states to round up any surplus allocations A total of 17 states turned back allocations totaling 2,431,035 doses to be reallocated They were Alabama, Arkansas, Florida, Georgia, Idaho, Indiana, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nevada, Ohio, South Carolina, Tennessee Texas, and West Virginia Seven of them—Kentucky, Maryland, West Virginia, Arkansas, Louisiana, Alabama, and South Carolina—also waived their rights to a share in the next allocation The latest allocation to states totaled 5,564,097 doses, and an additional 4,860,097 were licensed for export Up to late June, a total of 67,800,367 doses were released to states and territories from the start of the allocation program in April of last year

TAX DEFERMENT FOR RETIREMENT FUND PAYMENTS

By a single-vote margin, the Ways and Means Committee of the House has turned down a bill that would have offered tax deferment status for up to $1,000 a year paid into retirement funds ranging from individual plans to social security It was estimated that the revenue loss to the treasury would be between 2 and 3 billion dollars annually, mostly through the waiver of income tax on social security payments

The issue arose during committee consideration of a move to grant tax deduction privileges to money paid into the railroad retirement fund However, before a vote could be taken on this bill, it was amended to allow both workers and self-employed persons to deduct from their taxable income up to $1,000 annually if this money is invested in almost any type of pension or retirement arrangements—social security, railroad retirement, company pension plans, professional or other private pensions, or federal, state, or local government retirement programs

Before the same committee—but not acted on in th past session—are the Jenkins-Keogh bills to allow th self-employed to deduct limited amounts from the taxable incomes for payment to retirement plans The bills have the strong support of the American Medic Association, American Bar Association, and most oth organizations representing the self-employed The o jective is to give the self-employed the same tax pri leges that are enjoyed by corporation employees regard to pension payments

PERSONNEL

Five American doctors will visit Russia early in September to confer with Russian physicians on medical rehabilitation, with particular reference to cardiovascular and epidemiological research problems The group will be made up of Dr Paul Dudley White, Boston, Dr Howard Rusk, New York, Ancel Keys, University of Minnesota, Dr James Watt, head of the National Heart Institute, and Mark Field, Boston sociologist Col Hugh R Gilmore Jr, for three years curator of the Armed Forces Institute of Pathology's medical museum, is retiring after 30 years' service The new chief of orthopedic service at Walter Reed Army Hospital is Col Milton S Thompson, formerly chief of orthopedic surgery at the U S Army hospital in Neubruecke, Germany Another Walter Reed appointment is that of Col Robert S Higdon as chief of dermatology service, he has been chief surgeon at a Tokyo Army hospital for three years

MISCELLANY

Recent seizures by the Food and Drug Administration include two lots of clinical thermometers with inaccurate readings and an uncertified antibiotic for use in animal feed In addition, $146,000 in drugs that had deteriorated or might result in injury to users were removed from the market by the owners New Washington laboratories of the National Bureau of Standards will be located at Gaithersburg, Md, near the capital The bureau said that present laboratories have become inadequte over the past 50 years The GI Bill of Rights, which ended on July 25, resulted in the training of 7,800,000 veterans, the Veterans Administration reports Of the total, 2,200,000 attended college, about 10% of these taking scientific courses, including medicine Passed in the last week of Congress was legislation that puts all servicemen under social security and increases payments to dependents of men who die on active duty but does away with the $10,000 free life insurance set up during the Korean war

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ACUTE, SUBACUTE, AND CHRONIC SUBDURAL HEMATOMA

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This article deals with the diagnosis and treatment of 300 cases of subdural hematoma in which operation was done in a series of 30,000 head injuries In the time of Virchow, chronic subdural hematomas were included under the term pachymeningitis hemorrhagica interna After the classic paper on chronic subdural hematoma by Trotter[1] and the important contribution by Putnam and Cushing[2] the traumatic nature of this condition was established Many outstanding articles have since been devoted to its description, especially by members of neurosurgical clinics Much less attention has been paid to acute lesions, seen chiefly by physicians in big city hospitals, and opinions as to what constitutes an acute" subdural hematoma have varied widely[3] With time, custom has dictated that all subdural hematomas be divided into acute and chronic groups, despite advice to the contrary by Laudig Browder, and Watson[3c] and Munro[3d]

In the present study of cases on a large emergency service, it has been apparent that a classification of subdural hematomas into acute and chronic groups is misleading and fails to recognize or to alert the medical profession to the fact that almost half of all these cases are really subacute and require operation as a lifesaving procedure on the 7th to 21st day after injury[4] In this paper, therefore, subdural hematomas have been divided into acute, subacute, and chronic groups (see table), although it must be clearly recognized that there is no sharp dividing line between the three forms

In the group of acute subdural hematoma are included all patients with a subdural hematoma who appear to require surgery as a lifesaving procedure during the first week after injury The majority of these individuals have sustained a severe head trauma, resulting in fresh blood or blood clot in the subdural space and a seriously injured brain (fig 1) Due to severe brain injury, the mortality in the acute group is high during the first week and extremely high in the first 48 hours after injury, even though the hematoma has been removed Patients with a chronic subdural hematoma have usually recovered from their head injury,

• *Subdural hematomas were found at operation in 300 patients out of 30,000 hospitalized for recent head injuries Diagnosis was difficult, since abnormal neurological signs were frequently not of localizing value Marked dilation of the pupil on one side was associated with ipsilateral lesions in 35 cases, contralateral in 9, and bilateral in 12*

The prognosis was related to the degree of traumatic brain injury and to the timing of operation Operation to save life must usually be done before the appearance of coma

Patients in whom operation became necessary during the first seven days were classified as having acute subdural hematomas of the 93 patients in this group, 67 died There was a subacute group in which operation was done on the 7th to 22nd day, of 132 patients in this group, 31 died Of 75 patients in the chronic group, in whom operation was done later than 21 days after the trauma, 19 died

Progressive, often fluctuating, stupor, developing gradually after a lucid interval, is characteristic of hematoma Operation relieves the symptoms of the hematoma but not those caused by irreversible damage to the brain itself It is important to recognize the existence of the subacute group, since patients in this group required surgery to save life on the 7th to 21st day after injury

which may have been severe but more often was mild, or there may be no history of trauma Several weeks to months later serious symptoms appear, often presenting a diagnostic problem that may suggest brain tumor diffuse degenerative brain pathology or psychosis Surgical evacuation of the hematoma which as a rule is encapsulated, is curative in the majority of cases if the patient is not in coma at the time of operation Between the two extremes of the condition described falls the group of subacute subdural hematoma In this group which includes almost 50% of all instances of hematoma in our series the head injury is most often relatively severe Recovery from the initial brain injury occurs but it is very often incom-

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From the Department of Neurosurgery New York University-Bellevue Medical Center plete and is followed by drowsiness, disorientation, or other progressive signs of brain compression from the hematoma Surgery becomes essential to save life at any time from one to three weeks after injury and carries a very good prognosis in the majority of cases, providing the patient has not lapsed into coma before operation

Material

In the 300 cases of subdural hematoma described, operation was done on the wards of the neurosurgical department of the New York University–Bellevue Medical Center during 1940-1951, these cases were from among more than 30,000 patients with recent evidence of head injury admitted to the Bellevue Psychiatric Hospital and to Bellevue Hospital Of these, approximately 6,000 patients had evidence of relatively severe intracranial injury and were sent to the neurosurgical wards Some of the patients with more chronic hematomas were transferred from the psychiatric or medical services, having been admitted there with no history of head trauma

Data on 300 Cases of Subdural Hematoma

	Acute		Subacute	Chronic	
Time from injury to operation	2 to 48 Hrs	3 to 7 Days	7 to 22 Days	22 to 30 Days	Over 30 Days
Total no of cases	50	43	132	20	55
Lived	5	21	101	18	38
Died	45	22	31	2	17*
Mortality, %	90	51 1	23 4	10	30 9

* 12 of these 17 patients were in coma at time of operation

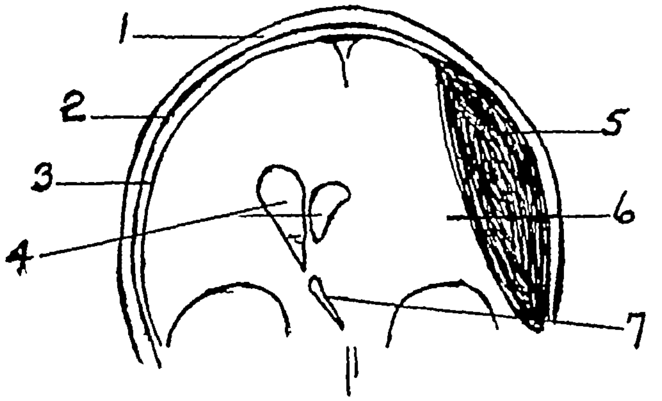

Fig 1 —Schematic representation of subdural hematoma 1, skull 2 dura mater, 3 subdural space, 4 lateral ventricles displaced away from hematoma, 5 subdural hematoma in black 6 brain compressed by hematoma, and 7, displaced third ventricle

The above statistics indicate that an operable subdural hematoma occurs in approximately 1% of all head injuries and in about 5% of the severe cases In addition, about 1% of the severely injured patients developed an epidural hemorrhage and 1% an intracerebral blood clot In other words, less than 2% of all patients with head trauma in this series had an intracranial hematoma at operation, and about 7% of patients with severe head injuries developed such a surgical lesion Undoubtedly in addition there were a number of instances of intracranial hematoma that were not diagno linically These findings on the incidence of sub atoma are in keeping with those of Browde orkers,[3c] who reported an incidence of 1% i es, and somewhat wer than those o who fo 0% in a selective group

Etiological and Pathological Considerations

Brain laceration has appeared to be a common source of subdural hemorrhage, judging from the operative findings Trauma was severe enough in 90% of the cases of acute and subacute hematoma to cause a laceration, and blood was present in the cerebrospinal fluid of about 90%, exclusive of the chronic cases Rupture of a vein bridging the subdural space, as described by Trotter,[1] was probably the source of the bleeding, especially in cases of chronic hematoma that followed minor trauma Massive arterial hemorrhage associated with a depressed skull fracture occurred in at least six cases from laceration of branches of the middle cerebral artery or from a torn middle meningeal vessel that bled through a rent in the dura A few subdural hematomas resulted from a ruptured aneurysm or tumor, but these were not included

The formation of a collection of blood in the subdural space usually gives rise to few early symptoms unless the hematoma forms rapidly or is unusually large, as in the uncommon case of active arterial or massive venous hemorrhage The bleeding generally stops soon after injury, and evidence of continued subdural bleeding is rarely seen at operation in subacute or chronic cases Delayed symptoms in subacute cases, therefore, in our opinion, are rarely due to slow hemorrhage, despite the occasional presence of red blood cells in the outer membrane The fatal course of many patients with acute subdural hematoma is, as stated, generally the result of associated brain injury and its complications and not of the hematoma

Because the brain can adjust rapidly to a large subdural clot, the patient may become asymptomatic or relatively so as he recovers from his direct brain trauma Most hematomas then liquify, if they are not already in such a state, and become larger as they acquire more fluid, presumably through the process of osmosis[5] It is this increase in size of the hematoma over days to months, with its resulting effect on the underlying brain, that causes progressive symptoms and death in the great majority of cases unless operation is carried out In the chronic state the hematoma is most often liquid but may contain soft clot and usually is surrounded by a membrane at any time after the seventh day of its formation Occasionally the clot becomes organized to the consistency of liver, and rarely it is calcified Pathological changes in the brain as a result of pressure from the hematoma have been widely described in the literature[6]

Acute Subdural Hematoma

Ninety-three patients operated on before the seventh day after injury have been included in the group with acute subdural hematoma Analysis of these cases is divided into two sections to stress the high mortality that occurs in those operated on within two days of the injury

Patients Operated on During First Forty-Eight Hours—There were 50 patients in the group who were operated on in the first 48 hours after injury Trauma to the head was severe or relatively so in 47. X-rays of the skull were obtained in 20 and revealed a fracture in 14 The spinal fluid was bloody in 46, and no lumbar puncture was done on 4 Stupor or semistupor persisted from the time of injury in 45 Only two patients became sufficiently mentally clear to walk and to answer questions, but even these two were confused Most patients showed slight improvement after the injury, but the clinical picture then deteriorated and deep stupor or coma appeared in all The downhill course was accentuated by a convulsive seizure in 10

Abnormal neurological findings were present in all cases, usually progressive in nature and suggestive of a focal lesion Only 5 patients survived in this group of 50 acute cases, and 3 of these were individuals with a relatively lucid interval after injury The subdural hematomas removed at operation in the 50 patients consisted of large, fresh, "current-jelly" clots, with varying amounts of fluid blood An associated intracerebral clot in the temporal lobe was present in 4, and a lacerated brain was noted in at least 19 instances at operation

The 50 patients operated on within 48 hours after injury suffered in most instances from a severe brain trauma plus an acute subdural hematoma Death in 45 cases, a mortality of 90%, was due largely if not entirely to brain injury, the removed hematoma, although large, being incidental Survival in five cases may be attributed to evacuation of the blood clot, the brain injury being less severe in these individuals

Patients Operated on Three to Seven Days After Injury—Forty-three patients are included in the group of patients operated on three to seven days after injury Trauma was severe in the majority Blood in the spinal fluid was obtained in 33, and in one the fluid was clear A fractured skull was reported in 13, and the x-rays were negative for fracture in 13 Thirty-six individuals improved to the state where they were conscious but usually drowsy and disoriented, although in three instances they became alert and oriented Thirteen patients were very restless, agitated, or violent After these patients showed some improvement, drowsiness became progressive, often fluctuating in character, and semistupor to stupor appeared in all A deterioration in the state of consciousness, often sudden in onset, and deterioration of other signs was hastened by an epileptic seizure in 15 patients As in most cases of acute subdural hematoma, there were usually some neurological signs of progressive brain pathology At operation the hematomas consisted of "current-jelly" or "milk-chocolate" clots, with varying quantities of reddish-brown to black fluid Two patients had yellow subdural fluid Death occurred in 22 patients, and 21 lived

Most of the 43 patients in this group received a severe head trauma Twenty-two died largely as a result of their brain injury, despite removal of the hematoma The remaining 21 were saved by operation The mortality of 51 1% is considerably lower than in those operated on in the first 48 hours, and the degree of consciousness temporarily regained shortly after injury was greater in a higher percentage of cases The brief duration of the illness, it is believed, justifies placing these cases among the group of acute subdural hematomas

Subacute Subdural Hematoma

In 132 patients operation was done on the 7th to the 22nd day after head injury Trauma to the head was sufficiently severe in at least 120 cases to cause blood in the spinal fluid A fracture of the skull was noted on the x-ray in 55, and the x-rays were normal in 38 All patients who lost consciousness after injury subsequently regained it. Thirty-nine individuals became mentally clear for varying periods, and during this interval many of them complained of headache The remainder, although they regained consciousness and in many cases became alert and cooperative, continued to show some degree of drowsiness and disorientation With about 20 exceptions, before operation all patients went through a period of progressive drowsiness that was usually fluctuating in nature and commonly ended in semistupor, stupor, or coma Abnormality in the neurological examination, often slight and at times absent, but usually progressive, was present in the majority of cases Thirteen patients had pneumoencephalograms and five patients angiograms prior to surgical exploration The clinical course was aggravated by a convulsive seizure in 31

Pathologically the hematomas in at least 61 of this group consisted of 'current-jelly' or "milk-chocolate" clots, with black, tarry, or brown fluid in all but 9 cases, in which it was yellow Membranes, at times bluish or bluish-green in color, were described in 27 cases, in 18 of which blood clots were also present Of 132 patients, 101 lived and 31 died

In this group of 132 subacute cases the mortality was 23 4%, which is much less than in the acute variety Unlike many of the patients with acute lesions, in the patients in this group recovery from the brain injury had taken place or was occurring when the downhill course was precipitated by compression from the subdural hematoma Improvement clinically and from the brain injury was usually less complete and less prolonged than seen in the chronic group Pathologically, the hematoma, as regards such factors as its stage of liquifaction or membrane formation, occupied in most instances a position between the acute and chronic type On the basis of time elapsed since the injury, clinical course, nature of the brain injury, and pathology of the hematoma, most of these cases were neither acute nor chronic and are well described as subacute

Chronic Subdural Hematoma

All 75 cases in which operation was done later than 21 days after trauma are included in the chronic group, but for the sake of analysis they are divided into two sections according to time elapsed since injury

Patients Operated on from Twenty-One to Thirty-One Days After Injury—There were 20 patients in the group of patients operated on 21 to 31 days after injury, and a history of a relatively severe trauma to the head was obtained in all The spinal fluid was bloody or xanthochromic in at least 14 cases Eight of the patients became mentally clear and 12 were alert but continued to show a variable degree of disorientation and memory defect In seven patients the diagnosis of an intracranial expanding lesion was confirmed by pneumoencephalogram and in one by angiogram The remaining 12 patients became progressively disoriented and drowsy and were explored for a hematoma At operation the hematoma resembled that seen in the usual chronic case, but blood clots were present in nine, and one clot was organized to the consistency of liver Membranes were described in nine patients

Eighteen of these individuals lived, and two died Classification of this more or less transitional group is difficult In keeping with most authors, we have described these cases as chronic, since operation was done more than 21 days after injury Actually many of them would fit better into our group of subacute cases

Patients Operated on More Than Thirty Days After Injury—Fifty-five patients comprise the group operated on more than 30 days after injury A definite history of injury was obtained in only 18, but most were unable to give an accurate history on admission Spinal fluid was removed in 43 and described as bloody in 10, xanthochromic in 11, and clear in 19, the color was not noted in 3 A fracture of the skull was described by x-ray in 8, x-rays were normal in 12, and no x-rays were available in 19 The history in the great majority of patients was one of mental deterioration for weeks to months, with gradual disorientation and confusion leading commonly to fluctuating drowsiness Headaches frequently preceded the mental changes At times the patient was irritable and even violent Many were admitted as psychiatric cases to Bellevue or were considered to have arteriosclerotic encephalopathy or brain tumor Most patients had neurological signs of organic brain disease, although commonly these signs were slight or absent

In nine patients the diagnosis was made by ventriculogram or by pneumoencephalogram and in three by angiogram In several the hematoma was unexpectedly exposed during ventriculography or during operation for an apparent brain tumor In the remaining patients operation was carried out because of the downhill course All 55 patients had fluid hematomas, which were surrounded by membranes in at least 46 The fluid was of varying shades of brown, except in six cases, in which it was yellow Some blood clot was present in 16, often in the form of a shaggy, brown clot beneath the outer membrane Twelve patients were comatose before operation, and all of them died Of the 55 patients, 38 lived and 17 died The clinical picture in this group of patients with chronic subdural hematoma was most commonly one of progressive mental deterioration, frequently simulating that seen in psychosis, arteriosclerosis, or brain tumor, and often leading to progressive fluctuating drowsiness and neurological signs of organic brain disease There was frequently no history of head injury, or the patient had recovered from such an injury before symptoms appeared

Diagnosis

If after a head injury a patient regains consciousness and is relatively alert (has a lucid interval) and subsequently in hours to weeks becomes progressively stuporous, it is essential that an intracranial hematoma be ruled out Such a clinical course developing in the first 24 hours is usually due to an epidural hemorrhage from the middle meningeal artery and as a rule is accompanied by hemiplegia and a dilated pupil, but occasionally a massive subdural or intracerebral hematoma will give a similar picture These patients may be saved by emergency operation The vast majority of the other patients operated on in the first 48 hours, who have remained stuporous from the time of the accident, are suffering from brain injury and will not be benefited by surgery even though localizing signs are present and a subdural hematoma is removed A rare exception is the patient with an epidural or large subdural hematoma, unaccompanied by fatal brain trauma, that develops while the patient remains stuporous and is usually impossible to diagnose After the first 48 hours following injury, the most common and characteristic symptom of a subdural hematoma is progressive drowsiness, often with disorientation and generally fluctuating in character In the case of chronic lesions a gradual mental deterioration frequently precedes the drowsiness The clinical picture of an intracerebral hematoma or tumefaction from local, traumatic softening may closely simulate that produced by subdural hematoma [7]

Abnormal neurological signs, although they may be minimal or absent, are usually present and often gradually progressive These include papilledema, which is not common during the first two weeks after injury Frequent findings are an inequality of the pupils, less often a dilated pupil, a slight lower facial weakness, unequal deep reflexes, unequal abdominal reflexes, and the presence of Babinski's sign, often bilaterally Progressive unilateral motor weakness, and occasionally hemiplegia, occurred as a result of a subdural hematoma in 43% of acute cases, 20% of subacute, and 42% of chronic A slight drift of one of the outstretched arms is a frequent and very valuable sign, especially when it is increasing in severity A convulsive seizure in any of these cases may precipitate hemiplegia Other less frequent signs include aphasia, homonymous hemianopsia, paralysis of the third or sixth nerve, a hemisensory loss, and, in chronic cases, catatonic-like posture, tremor, and unsteady or shuffling gait Some patients with a subdural clot do not show progressive drowsiness or mental change, at least at first, but may complain of severe headache with or without neurological signs Papilledema or an elevated spinal fluid pressure may be the only positive diagnostic signs that this small group presents Headache of itself is, of course, by no means indicative of an intracranial hematoma Drowsy patients do not usually mention headache

The diagnosis of subdural hematoma is generally not made on the basis of a single examination but on observation of the patient's clinical course It is the increasing severity of the signs and symptoms that is important, since those present from the time of injury are usually due to laceration or contusion of the brain In summary, it may be safely stated that if, after a head injury, a conscious patient at any time, from hours to weeks, or even months, begins to show progressive downhill course in mental status or in neurological signs indicative of an intracranial lesion, he must be regarded as having a subdural or other intracranial hematoma until this is ruled out

Nonclinical Aids in Diagnosis—Although the clinical picture provides the most valuable criteria in diagnosis, there are certain nonclinical examinations that may be of great help These include a shift of the calcified pineal body shown on x-ray of the skull, pneumoencephalography, ventriculography, electroencephalography, and angiography Air studies or angiography are not well tolerated by the very sick patient, and bilateral temporal (and/or other) burr holes are safer and nearly always diagnostic Electroencephalography has not been of much help in acute cases, but in the subacute and chronic ones it has been of great assistance, especially when repeated electroencephalograms are done and reveal a progressive abnormality

"Localizing" Signs

Abnormal neurological signs due to subdural hematoma, although indicative of an organic lesion, are frequently not of "localizing" value[8] In 79 cases, localizing signs correctly indicated the side of the hematoma, but in 29 they pointed to cerebral lesions on the opposite side The neurological findings in 139 were inconclusive so far as localization was concerned There were 53 cases of bilateral subdural hematoma, and in 23 of these the neurological examination indicated a probable unilateral lesion

Unilateral motor weakness was described in 97 cases In 21 the weakness was on the side of the hematoma, in 53 on the opposite side, and in 23 there was either a bilateral hematoma or a hematoma on one side and a fresh laceration of the opposite hemisphere A marked weakness of an arm or leg was present in 20 patients operated on within 48 hours of the injury and was probably due to direct brain trauma In 11 the motor weakness developed or became worse after a convulsive seizure

Localizing Value of an Enlarged Pupil—An inequality in the size of the pupils, at times fluctuating in character, was noted in 145 of our cases of subdural hematoma before operation The large pupil was on the side of the hematoma in 74 cases, on the opposite side in 41, and in 30 there was a bilateral hematoma or a hematoma on one side and a lacerated brain with a small amount of subdural blood on the other Fifty-seven patients had a quite marked dilation of one pupil, which was on the same side as the hematoma in 36, on the other side in 9, and the hematoma was bilateral in 12 These findings indicate that a dilated pupil is of some value in localization, whereas a slight to moderate enlargement of one pupil is of no value

Convulsive Seizures

Sixty patients had one or more convulsive seizures in the hospital before operation Fifty-six of these were in the group of acute or subacute cases, and only four had chronic subdural hematomas The cause of the seizures in most cases appeared to be the brain injury or hematoma but chronic epilepsy was reported in five, and chronic alcoholism which was very common, may have contributed in some The high frequency of seizures in the presence of brain injury and subdural hematoma is a serious complicating factor, and seizures frequently precipitated hemiparesis or continuing stupor in an already drowsy patient

Pulse, Cerebrospinal Fluid Pressure, and Blood Pressure

Although there is no constant relationship between pulse rate, blood pressure, cerebrospinal fluid pressure, and state of consciousness in cases of subdural hematoma,[9] there are certain observations that deserve comment A slow pulse was present in at least one-third of the cases, and an elevated pressure was found on lumbar puncture in two thirds A rise in blood pressure occurred in approximately one-third and in about one-half of those who showed a rapid downhill course in the first 48 hours after injury A high cerebrospinal fluid pressure was the rule in this latter group Most individuals with a subacute or chronic hematoma who developed a systolic blood pressure over 170 mm Hg had an elevated cerebrospinal fluid pressure (17 out of 18 cases in which such combined studies were done) In 14 of the 18 cases the cerebrospinal fluid pressure was over 220 and in 8 over 300 mm H_2O On the other hand, in subacute or chronic cases a high cerebrospinal fluid pressure was more often not associated with a rise in blood pressure

Causes of Death

In the 300 cases in which operation was done, 117 patients died, a mortality of 39%, which is almost the same as that reported by Munro[3b] and by Browder and co-workers[3c] Forty-five of the deaths were among the patients operated on within 48 hours of the injury and were due largely to brain trauma Of the remaining 72 patients who died, 62 were in coma or deep stupor at the time of surgery and were helped little by removal of the hematoma The downhill course was aggravated by a convulsive seizure in 12 and by pneumoencephalography in 2 Earlier operation could probably have saved a large number of those in the subacute group, and this certainly is true of the 19 with chronic subdural hematomas Many of these patients were already in coma when brought to the hospital or when first seen by the neurosurgeon

It is very evident that if a patient is allowed to become comatose or deeply stuporous before surgery his chances of survival are greatly lessened In subacute and chronic cases, coma only too frequently is due to irreversible changes in the brain stem and elsewhere, resulting primarily from compression by the hematoma, which explains the lack of improvement after operation in many of the comatose patients Three patients died of an operative infection, one of thrombophlebitis and pulmonary embolism and, in a number, especially in the older age group, the compressed brain failed to expand after extirpation of the lesion

Treatment

In all cases of head injury surgery is potentially necessary Patients with such injuries should be continuously under expert observation Until operation becomes necessary, the patient should be treated, as in all cases of head injury, with simple common sense and conservative measures These measures have been extensively described in the literature and include keeping the stuporous patient on his side to prevent swallowing of the tongue and aspiration of secretions, avoidance of restraints, ample airway, with oxygen, and even tracheotomy, if required, temperature kept below 102 F (38 9 C), with, if necessary, alcohol sponge baths and multiple ice bags, antibiotics, after the first 24 hours, 1,500 cc of fluid a day, and perhaps tube feeding later, maintenance of proper electrolyte balance, anticonvulsive therapy for clinical seizures, phenobarbital and rarely paraldehyde for restlessness, catheterization or indwelling catheter as indicated, and, finally, treatment of associated injuries Shock was seldom observed in our patients with head injury unless there had been hemorrhage or injury elsewhere to the body Lumbar puncture and hypertonic fluids given intravenously were rarely used in treatment, although the former was employed for diagnosis and occasionally for the relief of severe headache

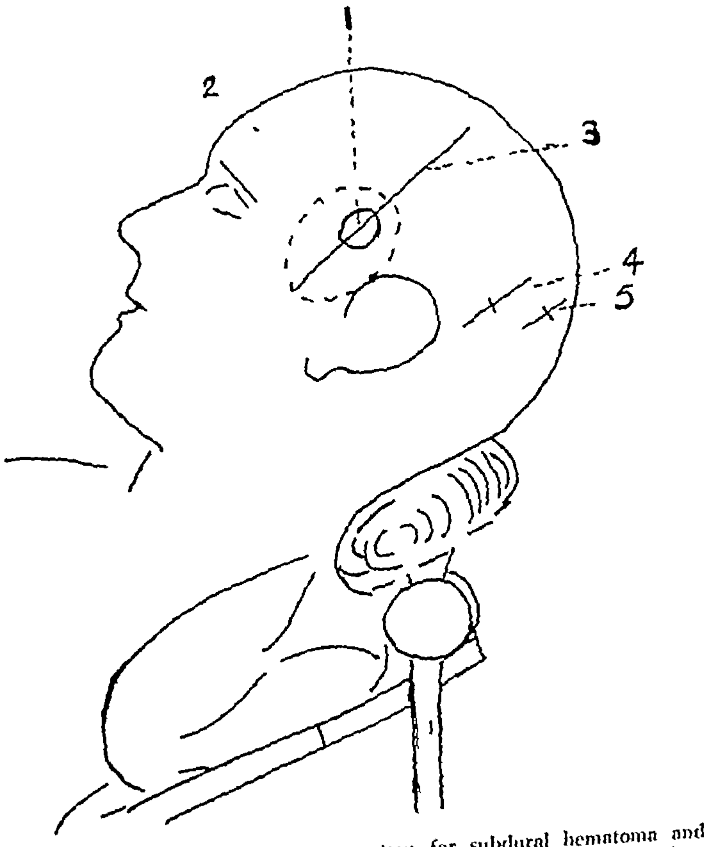

Fig 2—Position of patient at operation for subdural hematoma and surgical approach 1, exploratory burr hole, 2 subtemporal decompression 3 extended incision, and 4 and 5, additional incisions if necessary for exploratory burr hole and for ventriculography respectively

The timing of surgical intervention is extremely important The acute cases are emergencies and may be indistinguishable from epidural or intracerebral hematomas In the subacute and chronic group, the drowsy patient must be followed with extreme care and operated on before the appearance of coma, which in the lethargic patient often comes on suddenly It is our custom in operating on patients suspected of having a subdural hematoma to use the subtemporal approach, with the head of the operating table elevated and the patient's head supported by a posterior neck rest (fig 2) Both sides of the cranium are explored, as about 18% of subdural hematomas are bilateral The head is draped so that a large subtemporal craniectomy may be done and occipital burr holes for ventriculography may be made if necessary The great majority of subdural hematomas can be found on thorough exploration through the subtemporal approach, al though additional burr holes may be made when indicated A chronic fluid hematoma may, of course be evacuated through an occipital burr hole when i is exposed during ventriculography It has been necessary to turn a bone flap in only a few of the 300 case reported, and this was usually to remove an organize liver-like clot Certainly, in the sick patient with subdural hematoma, a bone flap should be avoide whenever possible[10]

Conclusions

A study of 30,000 patients with trauma to the he indicates that an operable subdural hematoma occ in about 1% of all head injuries and in less than 5% severe cases The customary classification of subdu hematomas into acute and chronic groups appears u satisfactory and misleading If any classification of su dural hematomas is used, it is believed that it shou clearly indicate the existence of a subacute group, almost 50% of our 300 cases of hematoma were su acute and required surgery to save life on the 7th the 21st day after injury

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PROGRESS IN PREVENTIVE MEDICINE

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• The progress of medicine is strikingly revealed when the present is compared with the past The life expectancy of an infant at birth in the early days of the United States was actually less than the age at which the medical student of today completes his formal education, he can afford to prolong his schooling far beyond what would once have been considered reasonable because the duration of his expected productive period has been so greatly prolonged

The importance of preventive medicine is appreciated only if one recalls the pestilences and similar calamities of the past Further reduction of the mortality and morbidity from accidents is obviously possible The prevention of such conditions as arteriosclerosis and hypertension will be more difficult

Progress is motion toward a goal To measure progress, we must know the goal It is to the everlasting credit of the individual members of the medical profession that they have a goal, a goal that recognizes that human illness is not the punishment of an angry god for improper behavior, but rather a failure on the part of man to understand the interplay of forces in his environment and in his own body The physician s goal recognizes too, that there is an obligation to correct this failure Some of the early beginnings of preventive medicine are spelled out in Mosaic law Tribal customs are an interesting mixture of sound conclusions based on intelligently analyzed observations and of other conclusions that are generalizations originating in one case and remind one of those of a young child becoming acquainted with the world around him and generalizing with naive bravery

It can safely be stated that we in medicine still have such a mixture of conclusions Patient careful observations, checked and rechecked have sorted out the obvious, and a remarkably large portion of the obscure, fallacies in our reasoning There have been enough changes in our concepts of disease during the medical life of all physicians alive today to make us very sure that the expression we used to hear after the first act of the circus "Sit still folks this may look good to you, but you ain t seen nothing yet is pertinent to medicine today

A famous physician-writer in the last century left us a poem that shows us a way to look at this goal of medicine Dr Oliver Wendell Holmes a man who played an important role in preventive medicine in his time with his work on the prevention of puerperal sepsis, wrote about a remarkable vehicle, a famous one-horse shay Here is a brief excerpt from that poem

> Now in the building of chaises I tell you what,
> There is always *somewhere* a weakest spot
> In hub tire felloe in spring or thill
> In panel or crossbar or floor or sill
> In screw bolt thoroughbrace —lurking still
> Find it somewhere you must and will —
> Above or below or within or without —
> And that s the reason beyond a doubt
> That a chaise *breaks down* but doesn t *wear out*'

It seems to me that Dr Holmes not only saw a goal clearly but also showed in the rest of his poem that he was convinced that this goal could be reached His deacon built a shay that did not break down Only after 100 years to the day did it wear out

If we take literally his goal of 100 years he must have been a man of tremendous vision At the time he wrote, the average life expectancy at birth was much less than half way to the goal However he was not a soothsayer or visionary Then as now there was evidence that the human body is able to function well and effectively for 100 years in the few persons who have no "weakest spot Today we do not need nearly as much vision to see such a goal and the evidence at hand is partially illustrated by the fact that in the United States we are well past the midfield marker At midcentury the expectation of life at birth was 68— years In fact in football terminology we are in scoring territory on the enemy's 32-yd line

Past Gains

I would like to push this comparison with a football game a little further to show some of the plays that have been made When the forerunners of modern medicine got the ball they were backed close to the 20-yd line in their own territory Think for a moment what this meant to the maximum possible productivity of the human race The period of dependency the period of being a drain on society exceeded the productive years in the life span of the average person Mankind literally could not afford to devote the number of years to training that we now accept as a minimum standard for our children The formal training of a physician with rare exceptions requires so many years that the man or woman graduating from school and beginning his productive work today is several years beyond the average life expectancy of an infant in the early days of the United States Just as when in the game of football we get out of enemy territory we can seize a more diversified offensive so in medicine this increase in life expectancy gives us the opportunity for a more powerful offensive drive Many of our specialists can and do devote 30 to 35 years to formal training with the realization that they can reliably count on a greater number of productive years both relatively and absolutely than was possible at any other time in the course of history

People as a whole forget the triumphs of prevention since nothing remains to remind them of the past problems Diseases that have been surmounted have

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Director National Heart Institute National Institutes of Health U S Public Health Service Department of Health Education, and Welfare

Read in the Symposium on Progress in Preventive Medicine Los Angeles Midwinter Medical Convention Jan 4 1956 been forgotten and the diseases yet to be conquered are foremost in the public's mind But we physicians ourselves should never forget Moreover, we have a responsibility as physicians to point out that our entire economy and our achievement in the physical and social sciences are all possible only because people live long enough to acquire the know-how we are so proud of Even more importantly, we no longer have the pestilences and plague that literally threatened the existence of whole countries People can now live long enough to use the skills that the advance in human knowledge makes possible

Few, if any, of us have had to deal with plague in the form that in one week resulted in 4,237 deaths in a community in which there were only 171 births in the same week Nor have we had to cope with outbreaks of yellow fever that decimate cities and force evacuation of populous areas, nor with cholera and similar pestilences These diseases still exist, they are a threat, but we have the knowledge and tools with which to handle them As we look at conditions in the world as a whole, a mopping-up process remains It can be done and is being done

Let me mention just a few facts to emphasize the progress we are seeing in our own time While literally thousands of cases of malaria were seen each year in my home state when I was a child, today there are virtually none If the diphtheria mortality rate of 1900 prevailed today, there would be over 60,000 deaths a year In 1950 there were actually 410 According to rates of 1900, there should now be over 45,000 deaths from typhoid, actually in 1950 there were 114

Similar figures could be given for other major communicable diseases, but it is even more interesting to mention another kind of triumph of preventive medicine its contribution to the industry of our country By way of illustration, I need merely cite the work on botulism, so ably done by Dr Karl F Meyer and others, that proved of far-reaching importance to the canning industry From this kind of work in the prevention of illness, not only industry but the entire economy and the health of our people benefited tremendously

Practicing Physician and Prevention

In disease prevention, the truly indispensable keystone of all medical practice in the United States is the practicing physician, wherever he be, whether in a specialty or in general practice This recognition has been given often but in my opinion always can bear stressing In the conquests of disease, the practicing physician is the man who deals directly with the people He is the man who is personally responsible more than any other for daily guidance of others toward health through preventive measures No other has or could have his opportunities for promotion of sound health education As he will always be, the physician has been the mainstay of the important aspects of education in preventive medicine

Present Goals

We are concerned, and rightly so, because today diseases of the heart and circulation cause over half the deaths in the United States and because cancer and other chronic illnesses are leading causes of mortality However, in a sense this, too, marks a triumph of preventive medicine, not many years ago, a famous leader in preventive medicine set, as a goal for health, the idea of a country in which heart disease and cancer were the first and second causes of death This particular yard marker we have reached This fact serves only to make us push harder against remaining obstacles Thus do goals change with progress

One major point must be stressed we are making progress In cardiovascular-renal diseases there has been a general downward trend over the years The trend is slow and due to ill-defined forces, but it is real The only group of our population that does not appear to share in the generally favorable trend are the white males between 45 and 65 years of age In this group, the over-all downward trend is followed only because the rates for women are lower

The way to move ahead is clearly shown in two areas Arteriosclerosis no longer can be classed as an inevitable part of the aging process Hypertension at last is giving ground to therapy, and in the years 1950 to 1954 there has even been a slight downward trend in mortality from this condition More important is the fact that new therapeutic measures are in turn research tools that will lead to understanding, at least in part, of the mechanisms that go awry and lead to hypertension

In conclusion, I want to return to our one-horse shay, one that Dr Holmes may have been thinking about man as a species There is, in research, in public health, and in other areas, a primary responsibility to find the weak spots and repair them Dr Holmes passed lightly over a step that, to my mind, is fundamental to the full and complete life, free of breakdowns He made no mention of maintenance Here, though, is the key The individual physician and the individual patient must devote appropriate attention through the years to the maintenance of health Personalized attention, the sense of humanity that is part and parcel of our medical system and medical practice, remains the basic force that will take us to the goal we all seek

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Overlooked Malignancy in Gallbladder Disease—Persisting distress in the immediate postcholecystectomy period is occasionally traceable to malignancy overlooked when the gallbladder was removed Cancers arising from the head of the pancreas, the duodenum, the ampullary area, or the bile ducts are not infrequently associated with cholelithiasis Sometimes, when the growth is small, or when the duct is not probed and is examined only manually, a tumor encroaching upon the duct and narrowing its lumen is overlooked An occasional patient may secure temporary relief from cholecystectomy, especially if there were associated stones in the common duct and these were removed at the same time These individuals, however, soon present symptoms that were noted prior to cholecystectomy In addition, jaundice commonly develops, if it was not already present, and constitutional alterations such as weight loss appear An important lead is the occurrence postoperatively of acholic stools and persistent external drainage of bile —J E Berk, M D, and L C Alexander, M D, The Evaluation of Symptoms Following Cholecystectomy, *The Medical Clinics of North America*, March, 1956

PREVENTIVE ASPECT OF ROLE OF MEDICINE IN INDUSTRY

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• The need for a program of practical preventive medicine, with the increasing industrialization of our society, presents a challenge and an opportunity to the physician. Extension of the role of the physician and constructive changes in the method of payment for his services will involve many physicians in private practice as preventive medical care is provided for smaller industrial plants.

Improved working conditions have increased the life span of people in industry so that it now equals that of the general population. Personal illness and injury causes 60 or more times absenteeism than is due to direct occupational causes. The cost of workmen's compensation and of employee benefits, such as sickness allowance and hospital and medical insurance, gives industry a direct and vital interest in medical care.

The preplacement examination is the first element of a program of preventive medicine in industry; the program may also include periodic examinations of executives, advice on chemical and physical hazards on the job, counseling on nutrition and sanitation, programs of health education, and advice about air and water pollution. Within industry an opportunity is offered for the medical profession to take a leading role in a most promising application of preventive medicine.

There is a greater opportunity for developing an effective program of preventive medicine in industry, I believe, than in any other aspect of our society. To meet this challenge, to retain and justify our right to leadership in health matters, we must develop an understanding of the need and a willingness to make constructive adaptations of the traditional modes of medical practice. We must extend, with imagination and courage, the concept of the role of the physician. This discussion will emphasize the changes that are occurring, which offer a broader opportunity to the physician in private practice to participate more effectively in a program of preventive medicine, under circumstances which can be most beneficial to the people in industry and commerce, to the community and to the physician himself.

We must have no illusions that next week or next month there will come a sudden and impelling demand from industry for a great volume of service in preventive medicine. Nevertheless, the whole direction of the industrial health program has been moving firmly, and with an accelerated rate toward an emphasis on keeping people well. Many of the larger industrial organizations have recognized the need for a greater emphasis on preventive medicine by materially extending the scope of their health programs. Some smaller companies have developed comparable services, and the trend in this direction is unmistakable. The medical profession must be prepared to provide the needed service with understanding, with adaptation, and with the specialized training that will be required.

Status of Preventive Medicine

For the busy practitioner of medicine, the burden of caring for the sick and injured often leaves little time or opportunity for a major direct effort that is clearly defined "preventive medicine." He recognizes the element "preventive" in the work of his associates in public health, in the activities of the school physician, in the inoculations and well-baby examinations in pediatrics and, where he has acquaintance in certain aspects of industrial medicine. On reflection he will find that many of the daily activities of the general practice of medicine have an important "preventive" component. He will recognize, however, that these circumstances more often than not are incidental to, or a by-product of, the treatment of a disease condition. The opportunity develops as a result of an illness, not as a positive and original effort to prevent disease, or, more appropriately, to maintain health.

This is not an indictment of the practice of medicine thus far, nor does it, of course, diminish the value of these preventive efforts. Properly, we have first dealt with those matters of more immediate concern, the care of the sick and injured, and it is only when this job seems to be under some measure of control that we can turn our attention to the basic problems of prevention. It has been a characteristic of community development that a competent fire department precedes an effective fire prevention program.

The present organization of medical practice is predicated largely on a basis of curative medicine and this has been the traditional orientation, beginning in our medical schools. It is not an impossible task, but certainly a difficult one, to divert the interest of the third and fourth-year medical student, even temporarily, from the diagnosis and cure of disease to the problems of prevention. He will accept a momentary respite to hear of the specific techniques that have been applied successfully in the control of infectious disease, but the matters that he feels are more remote from the traditional practice of medicine and from his probable direct activity, such as the problems of mental health and of industrial environmental control, are likely to receive little attention. With our undergraduate curriculum already bursting at the seams, there is little likelihood of adding much more in the way of specific training in industrial medicine. We must somehow show him that the diagnosis and treatment of lead poisoning and silicosis are much less challenging, much less intellectually stimulating than the prevention of these diseases. And we must

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From the Eastman Kodak Company.

Read in the Symposium on Progress in Preventive Medicine, Los Angeles Midwinter Medical Convention, Jan 4, 1956.

convince him of these changes that will demand a greater emphasis on prevention and of his essential role in applying preventive medicine in industry.

The economics of medical practice has developed in relation to the diagnosis and treatment of disease. The price of an appendectomy is a well-recognized entity. But how do you charge for a few years' increase in life span achieved because you have helped your patient or, even more remotely, a group of patients not to become obese or have aided him directly or through his employer to avoid the excessive intake of an occupational poison? Even when the cost for an occupational injury or illness is accepted by industry, as in a case that comes under the workmen's compensation laws, the fee is established on a basis of the diagnosis and treatment and makes no provision for a preventive follow-through by the physician if he should feel that such a step were indicated and that he had the training and competence to do so. The character of many of the services that are an integral part of an effective program of preventive medicine in industry makes extremely difficult, if not impossible, a remuneration of the physician on a fee-for-service basis. In many smaller communities there remains considerable resistance on the part of doctors to accept any financial relationship that does not have a traditional sanction. This matter is noted because it is an important element in developing the conditions that will permit the physician to broaden the scope of his service. Fortunately, there is now a wider acceptance of the principle that the unit fee for service may not always provide the best means of compensation and that an hourly, monthly, or annual stipend is an ethical and more realistic method in certain circumstances. The physician serving industry should take the initiative in suggesting a method of remuneration that will permit greater effectiveness of his service.

A number of important developments are likely to have a major influence in modifying the traditional relationships in the practice of medicine, particularly with relation to the application of preventive medicine in industry. One of these has to do with the increasing awareness by the general public and by the medical profession of the significance of prevention of disease. A second is related to the structural change in our society, with the progressive industrialization.

Awareness of Public

Many of the preventive measures that have added so greatly to the span of life and to the decrease in morbidity from infectious diseases have been applied with little direct effort on the part of the individual who has benefited. For example, the sanitary control of water and milk supplies, which has so successfully decreased the incidence of typhoid fever that an epidemic involving less than 200 people becomes national headline news, is operative in most of our communities with little or no recognition by the general public. Similarly, such diseases as cholera and plague are held in check by a quarantine mechanism identified to the public only when it temporarily fails. Many of us find it difficult to believe that not so many years ago it was not uncommon for a third of the people of a city to die, in the span of a few weeks, from one of these epidemics. One by one, the infectious diseases, smallpox, tuberculosis, malaria, yellow fever, diphtheria, pneumonia and, hopefully, poliomyelitis have been eliminated or are being brought under effective control.

With these advances, the average span of life has doubled in less than a century, but this gain has been added chiefly to the earlier years of life. For example, of the 20-odd years that have been added since 1900, only 3 have been added after age 40. That is, while the infant now will live 20 years longer than the infant of 1900, a person 40 years old will live only 3 years longer than the 40-year-old in 1900.

Heart disease, cancer, arthritis, mental illness, and accidents have displaced the infectious diseases as the major causes of morbidity and death. It is obvious that a different kind of approach is needed to prevent these conditions. An effective program, particularly against degenerative disease, is much more likely to involve the active and considerable effort of the individual in whom the disease is to be prevented. The locus of this operation will change from the site of application of impersonal mechanisms, such as sanitary controls of water, milk, and meat, to the area of personal contact between the subject and the physician. Many events in recent years have focused public attention on the importance of prevention. Some of them are the impetus from the poliomyelitis story, the barrage of advertising efforts of organizations developed around heart disease, cancer, mental illness, muscular dystrophy, and a host of other illnesses, and the increasingly dramatized illnesses of prominent people.

Industrialization of Society

The second major factor noted above, the industrialization of our society, merits consideration. The proportion of our population living in urban communities increased from 40% in 1900 to 64% in 1950. This change in the character of our way of life is even more dramatically emphasized by the transfer of farm workers to industrial and commercial occupations. The proportion of our total civilian labor force in farm occupations dropped from 38% in 1900 to less than 12% in 1950.

The change in the basic structure of our society has involved much more, with respect to medical care, than the simple transfer of patients from the country practitioner to his city confrere. Work in factories, mills, mines, and commercial units has become more complex, the organization into labor groups has grown tremendously, work benefits involving the organization and economics of medical care have pyramided, and industry has enlisted the closer cooperation of the physician in promoting a more effective operation.

In many of the larger industries, there has evolved a concept of medical practice with many elements and activities that are quite different from those commonly encountered in other phases of the practice of medicine. These factors involve, chiefly, the area of preventive medicine applied to the industrial setting.

The emphasis is on maintenance of health with a positive approach and with a program aimed at keeping people well and working The care of occupational injury and disease is important, but the occurrence of these is always an admission of failure, a defect in a prevention-centered program The acceptance and constant extension of this kind of industrial health program by the larger companies is a measure of its essential value

If one looks at the distribution of the working population by the size of industrial or commercial units, it is quickly recognized that medical service by full-time industrial physicians will reach only a portion of the industrial population Ordinarily, a plant with less than 1,000 employees cannot justify the employment of a full-time physician Thus far, there have been remarkably few instances of smaller organizations successfully joining together to employ a full-time doctor Less than 1% of the industrial plants in this country, some 2,000 units in all, employ more than 1,000 workers, although these larger plants have nearly 35% of the industrial working force The other 65% of industrial employees, more than 10 million people, are in plants of less than 1,000 If these people are to share in the benefits of the kind of an industrial medical program that is available to the workers in the larger plants, the service must be supplied largely by physicians serving industry on a part-time basis

There are, of course, many physicians presently serving industry by caring for patients in compensation cases and perhaps performing preemployment examinations This is a beginning, but, if the service ends here, it falls far short of satisfying the ultimate need and opportunity Admittedly, the industry so served may feel that it is getting all of the service it needs or can afford This was the initial attitude of many of the larger companies when the physician was first employed The evolution of a broader program of preventive medicine was stimulated in part by the imagination and the effective performance of the full-time industrial physician But the acceptance by industry and the extension of the program have been on a basis of hard-headed, critical, and economic judgment of the value These same values apply to the smaller industrial units as well as to the large companies

Industry's interest in the health of its people extends far beyond that of the mere prevention of occupational injury and disease The economic factor is of prime importance in this interest, but many companies that have initiated a program on this basis have found other substantial benefits, such as improved industrial relations

Industry's stake in the prevention of illness is increasing at a rapid rate The attitude toward absenteeism has changed from one of indifference to a serious concern Some two-thirds of the total absence from work is due to illness, with a direct cost amounting to 5 to 10% of the total payroll cost This direct cost can be measured in terms of decreased production or in the increased number of employees required to assure full production The practice of paying a sickness allowance or benefit for absence due to illness is now widely followed Among the so-called fringe benefits, the payment by industry of at least a portion of the hospital, surgical, and major medical expense insurance costs is an increasingly common occurrence The ever more liberal interpretation of workmen's compensation laws has raised the cost of this insurance to a point where prevention of injury and disease takes on a new significance These conditions and practices are not limited to the larger industries, and as they extend to more and more companies many additional physicians will be called on for advice and direct help

Program and Responsibilities

The program of preventive medicine should begin with the examination of the applicant for a job The examining physician who is familiar with the job requirements, as a result of sufficiently frequent observation of actual work conditions in the plant, is much better able than one who is not to match the capabilities of the applicant with these requirements and to give real meaning to the term preplacement examination The physician who is asked to perform these examinations may be reluctant to suggest to the employer that he would like to see the plant and even more reluctant to discuss compensation for doing so I believe that the physician, in frankly discussing this matter with the employer, would be pleasantly surprised at the specific result and frequently would open the door to a discussion of a broader service for his employers

This preplacement examination frequently is the first contact of the applicant with a physician that is not the result of an illness or injury It is the golden opportunity to begin a sound program of health education The examiner must never forget that he is dealing with a person, not a pair of hands and eyes, a heart, and a spine So much of his future success in working with this individual depends upon the rapport that he is able to develop by sympathetic and helpful handling at this first examination

Even if there is no suitable work for the particular applicant, the physician may be able to counsel him concerning the correction of defects or advise him as to activities that are compatible with his capabilities This must not be done lightly, for the result may mean a major reorganization of his life and ambitions For example, a graduate organic chemist who applied for work in that field had a moderately severe residual dermatitis He gave a history of repeated attacks of dermatitis dating from his first experiences as a student in the chemistry laboratory and had abandoned work on four different compounds identified with four separate exacerbations of his dermatitis On one occasion he had been hospitalized for three months and had missed a semester of schooling Although he had been seen by a number of physicians, no one had suggested a change in vocational direction During his preemployment examination he was advised that, even if he were employed as an organic chemist, there was great likelihood of recurrence of the dermatitis and ultimate limitation of his opportunities in this field He was not advised to change only given the facts as clearly as possible On the basis of this discussion, he returned to school for another year of physical chemistry and has been happily employed in this field for nearly 10 years with only minor skin irritation

The preplacement examination has been emphasized here because frequently it is the first element of a program of preventive medicine in industry in which the part-time physician is asked to help It can be a perfunctory program of selection or rejection of applicants, with the physician playing an impersonal, mechanical role Or it can be a warm, instructive, and helpful experience to both applicant and employer with direct benefits to the physician

The control of hazards from occupational chemicals and physical agents is generally accepted as a direct responsibility of industry The number of such agents and the increasing complexity of industrial operations have resulted in the development of a highly specialized discipline, industrial hygiene The industrial hygienist has acquired from clinical experience and animal experimentation a most useful set of criteria to guide in the control of plant exposures The larger industries and those with very hazardous operations may employ a highly trained individual or a team of individuals, including chemists, physicists, and engineers It cannot be expected that the physician who serves a plant on a part-time basis will become a diversified industrial hygienist or toxicologist, but, if he is to do his job properly, he must become familiar with the nature of the hazards in those establishments where he has accepted a responsibility His role may not be an easy one, for, if the controls are inadequate, poisoning may occur, if needlessly severe, the cost of production may exceed that of competitive operations and seriously handicap the company

The physician who has had no special training in this field should be cautious in giving an opinion concerning the control of a hazard until he has obtained authoritative information It is not uncommon for the worker or his management to confront the physician with such a problem with an apparent expectation that a complete answer will be given immediately It is possible to spar gracefully for time, and a correct answer given later will justify the delay

With the development of effective industrial hygiene and safety programs, industry's attention has turned to the prevention of personal illness In my own company's experience, more than 60 times as much absence occurs from personal illness and injury as from direct occupational causes The performance of the worker is not just a matter of muscle and reflexes but is influenced by the whole gamut of factors that affect the whole man, physical, mental and emotional This does not mean that industry is going to provide total medical care, but, with the valid interest of the one who is paying an increasing part of the bill, there is certain to be a closer relationship to community medical activities Industry will need constructive counsel and advice in these matters, many of which involve preventive medicine in its broadest aspects

Opportunities for Extensive Aid

I have discussed only a few of the many phases of a program of preventive medicine that now are a regular part of the medical activities in a number of the larger companies Such activities include periodic examinations and examinations at the time of transfer to other work, at the time of return to work after an illness, on termination of employment, of special groups such as executives and other members of management, and of workers exposed to hazardous substances Each of these occasions offers an opportunity to counsel the individual on health matters at a time when his attention is not confused by the problem of recovering from an illness The detection of many potentially serious conditions in an early and correctable stage has real meaning and provides, with the continuity of employment, an opportunity to encourage correction

Health education, with the employment of group mediums, such as conferences, displays, motion pictures, and articles in the company publications, can be made most effective If the company provides facilities for meals, the cooperation and active participation of the cafeteria management can do much to improve nutrition Sanitation controls may cover the food service and its employees In many plants, the physician plays an important role in advising about effluents that might give rise to air and water pollution problems for the community Specific programs against infectious disease such as influenza and tetanus are sometimes justified on a selective or mass basis The physician can play an important part in improving mental health in his plant population by aiding in training supervisors with respect to the basic elements in human relations and by recognizing trouble spots in the plant from the nature of the complaints that bring people to a sympathetic medical department

In closing, I want to call to your attention an important finding, reported by the Metropolitan Life Insurance Company some months ago The life span of the industrial worker, as measured by that company's experience, had for the first time equaled that of the general population This is in contrast to the status some 40 years ago, when the industrial worker had an expectancy of life some 6 years less than that of the individual not employed in industry The relatively tremendous gain in longevity by the industrial worker has occurred in spite of the fact that this was also the period of much greater use of hazardous materials and equipment Certainly, one phase of preventive medicine in industry, the control of the industrial environment, must have been an important factor in this achievement The opportunity is offered the medical profession to take a leading role in a most promising application of preventive medicine The insight, the effort, and the positive direction that we exert in aiding and guiding the development of preventive medicine in industry will be a significant index of our maturity

343 State St (4)

PREVENTIVE MEDICINE IN AGRICULTURE

Franklin H Top, M D., Iowa City

• *The health problems of the agricultural worker are numerous and important, and some have no been solved Better reporting and classification of accidents is essential, for in 1954 there were 1,200,000 injuries on the farm, with 14,000 deaths*

Infections of animals are transmissible to man in many instances Among the most important of these zoonoses in the United States at this time are anthrax brucellosis, arthropod-borne encephalitis, Q fever, rabies, salmonellosis, trichinosis, bovine tuberculosis and tularemia Progress here also depends on improved reporting

The farmer is exposed to innumerable new chemicals, including pesticides, growth stimulator-, and antibiotics Greater awareness of their danger is desirable Skin disease from bites and irritants, pulmonary disease from dusts and pollens, gastrointestinal disease from poor sanitation, and disturbances of mental health assumed to be more common in rural than in urban areas require further investigation An Institute of Agricultural Medicine has been organized in Iowa in an effort to make sure that special attention will be devoted to these problems

A symposium such as you are participating in today would not be complete without including the problems of preventive medicine in agriculture This statement might lead one to conclude that there is a body of knowledge concerned with the health of and the prevention of disease in the agricultural worker There is some knowledge, but, as far as I can determine, there is little shape or form to it There are many bits of information here and there, but there is no integration of facts In this respect preventive medicine is in much the same position as industrial medicine was prior to the 20th century Industrial medicine is actually of ancient origin, but a status comparable to that of other branches of medicine was not achieved until the present century

The term "industrial medicine" denotes medicine as applied to the worker in industry, and to many, the industrial worker is a factory worker This concept of industrial medicine is too narrow, for it does not encompass a host of other workers unrelated to the factory, one such group would be agricultural workers although farming is not generally considered as an industry

Johnstone[1] in his book, Occupational Medicine and Industrial Hygiene," discusses the retardation of progress in occupational medicine over the centuries and finds that only within our time has it come of age In explanation he raises several questions and asks, "Why is it that America has no adequate system of rural medicine?" The health of the agricultural worker may be as good as that of his factory brother, but the advantages of the countryside are offset by hazards peculiar to the farm as a workshop Both industrial physicians and hygienists have felt the inadequacy of the term "industrial hygiene" to cover the problem of the health of the worker and the term "occupational medicine" is rapidly replacing it Too, these individuals are apprised of the lack of attention to the health of farm people as a group

In the discussion to follow it will become evident that the health problems of the agricultural worker have been neglected and this importantly includes preventive aspects as well Preventive medicine in agriculture is, then in its infancy, and I speak to you, not as an expert but as a neophyte in this field I hope you will forgive me the frequent references to Iowa particularly when discussing new developments in agricultural medicine

Farm Accidents

Accidents from all causes play a leading role in death and disability for all segments of the population, at the present time motor accidents head the list. Taking a cue from the state of Kansas many states are beginning to report accidents, but notification remains poor Much information may be gained by studying the booklet "Accident Facts," which is annually released by the National Safety Council However, in the realm of farm accidents the information is quite spotty The following figures are obtained from the 1955 edition In the United States in 1954 deaths due to farm accidents totaled 14,000, a rate of 61 7 deaths per 100,000 farm residents The total number of injuries was 1,200,000 Even on the farm, motor vehicle accidents were responsible for the greater share with some 5,900 deaths, for a rate of 26 Work accidents numbered 3,800, with a rate of 16 7 and farm home accidents totaled 3,500 giving a rate of 15 1 Public non-motor-vehicle accidents accounted for 1 300 deaths a rate of 5 7 deaths per hundred thousand farm residents

Of 1,200,000 injuries on the farm, 530 000 were attributed to farm home accidents Farm work motor vehicle, and non-motor-vehicle accidents resulted in 310,000, 210,000 and 160,000 injuries respectively These figures are not as clear-cut as one might hope for For instance accidents that occur during the performance of ordinary household or light farm duties commonly designated as chores are classified as home accidents Furthermore, deaths from motor vehicle accidents resulting from work activities are included both in the motor vehicle and work totals, this duplication in 1954 accounted for 500 deaths Included with major industries, farming is third in the number of deaths per 100 000 workers

Among the principal sources of accidents fatal to farm people motor vehicle accidents were responsible for over 40% of accidental deaths in 1954 most of the

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Head Department of Hygiene and Preventive Medicine and Director Institute of Agricultural Medicine State University of Iowa College of Medicine

Read in the Symposium on Progress in Preventive Medicine Los Angeles Midwinter Medical Convention Jan 4 1956 accidents happened off the farm. Falls accounted for about 2,000 deaths, of which 1,300 occurred in and around the home and 700 in the course of farm work. Tractor accidents account for 700 deaths a year. One thinks of a tractor as utilized principally on the land, but many of the deaths incident to work with tractors do not occur in actual farm work. In recent Minnesota and Iowa studies, essentially one-third of the tractor fatalities occurred in highway accidents. Surprisingly, a fair proportion of the fatalities do not occur among operators of the machine. Wisconsin and Ohio studies over a period of a year indicate that roughly 11% of the victims were children under 5 years of age and an additional 5% were between the ages of 5 and 9 years.

Wardle,[4] at Iowa State College, has carried out numerous studies in the state of Iowa relating to farm accidents and has been very active in the Iowa Farm Safety Council. He has been particularly interested in specific problems and recently reported on 2,519 corn-harvesting accidents that occurred in Iowa between 1947 and 1954. Among aspects studied were the specific danger points of the corn picker itself. In relation to this study and others, Wardle has been interested in the time of day that accidents occur. He finds that there is a peak midmorning and midafternoon period during which the majority of accidents occur. In terms of prevention, Wardle's studies serve as information for a column that has appeared in the *Wallace Farmer* over a number of years and also for a number of other press releases. Pamphlets on items relating to common causes of farm accidents are continuously being released through the state Agricultural Extension Service. Highlighting corn picker accidents in Iowa probably has accounted in large part for the marked decline in corn-harvesting accidents from a high of 561 in 1952 to 229 in 1953 and 200 in 1954.

The high level of work accidents on the farm is partially due to the shift from horse-drawn to motor-driven machinery. There is the matter of fatigue and failure to observe rest periods. Horses had to be rested periodically, and with this came rest for the driver. Furthermore, the same horses could not be worked 10 to 15 hours a day for several days. At present, it is not unusual for a farmer to spend more than 10 hours in the field with a tractor. Darkness appears to be no deterrent to further work, for with strong light he continues with the work at hand, often with few or no rest periods, sometimes a meal is omitted. A case in point is the farmer who came in for lunch and found that his wife had not yet prepared the food. Disgruntled, he took a glass of milk, stomped out of the house, and went back to work. Within an hour he was involved in a tractor accident that led to loss of a hand. Such instances can be multiplied many times. Mental attitude, press of work, and accident proneness are likely factors affecting the agricultural worker. In industry, the highly mechanized operations of today necessitate periods of rest, the so-called coffee breaks, and some operations are of such a nature that a change in type of work is made on a two-hourly basis. Farming, too, has become highly mechanized, but, with a late start occasioned by weather and soil conditions to goad him, the farmer simply works on without resting, and this invites trouble, particularly in the spring after a winter of relative inactivity. Long hours of sitting on a tractor or other mechanized unit is probably conducive to back pain, kidney and bladder conditions, hemorrhoids, and hernias.

To fatigue, as a factor in the increase in farm work accidents, must be added carelessness in the handling of machinery and poor safety design. In general, manufacturers of farm machinery have been interested in performance, and safety has been a secondary consideration. In recent years, safety has been emphasized to a much greater extent. Safety features, however, are not always appreciated by farm workers. In many instances, accidents have been attributed to the removal of safeguards on machinery. The safety guard appears to the operator to interfere with performative efficiency or speed. In the process of making a minor repair, he fails to replace the safety device, considering it nonessential.

Much work has been done to inform agricultural workers of the hazards of farm machinery, but, as with the automobile, the advice must be heeded. The agricultural worker must realize that accidents can happen to him. How can the dangers inherent in handling farm machinery be emphasized? Principally, by personal contact with the farmer, fortified by information in printed form that is easily read and quickly grasped. In this regard, the state extension services are doing a fine job, for farm and home safety is seriously considered by county farm safety committees and other rural groups, which are receiving and giving out program outlines, bulletins, leaflets, and books and are borrowing motion pictures, slides, and film strips.

Health Problems of the Farmer

Several health problems peculiar to the farmer come immediately to mind. Some will be discussed in greater detail than others, but those mentioned are already apparent and have been known for a long time.

Zoonoses.—The zoonoses may be defined as infections of animals secondarily transmitted to man. Hull[2] cites 115 diseases in this category, some 80 have been described in the United States and more than 40 in Iowa. Among the more important in this country at the present time are: anthrax, brucellosis, arthropod-borne encephalitis, leptospirosis, Q fever, rabies, salmonellosis, trichinosis, bovine tuberculosis, and tularemia. In Iowa, brucellosis, salmonellosis, and trichinosis are of particular interest. Many communicable diseases affecting man are reportable, although they have been reported only poorly. However, relatively few animal diseases are reportable and at present nationwide reporting rests on the initiative of the owner of a sick animal or on the veterinarian or veterinary agency. The necessity of notification of animal diseases and its important relationship to the occurrence of animal diseases transmitted to man is aptly pointed up and documented by Karl Meyer[3] in a recent monograph on "Zoonoses in Their Relation to Rural Health." The health of the farmer and of the consumer of his products is affected by control of infection among the animals he comes in contact with. As Meyer[3] indicates, prevention of the diseases in question must rest on adequate notification of animal diseases, verification of diagnosis, if possible, and collection and analysis of data resting on these reports.

Only by these means can adequate incidence data on the zoonoses be obtained, adequate control measures applied, and efficacy of control measures determined It is obvious that the key people in prevention of the zoonoses are veterinarians and general practitioners, each must immediately report on disease when and where it is found

There are other diseases less commonly encountered in Iowa and elsewhere that demand attention, study, and research, namely, histoplasmosis, psittacosis, and rabies To illustrate, several recent reports indicate that the host range of rabies among wild, semidomestic, and domestic animals has increased considerably, and attention has lately been called to a much enlarged reservoir, including nonsanguivorous bats indigenous to many of our states

Farm Sanitation—Sanitary facilities on the farm are often taken for granted, no matter how well kept the farm may be On the farm, water supply and sewage disposal are on an individual basis and are not open to frequent inspection, as is the case with community water and sewage disposal systems How often does the farmer have his well water tested? How frequently does he give thought to whether the effluent from his septic tank is coming to the surface? There are hazards connected with impure water from the handling of milk and milk products and other items of food grown on the farm Impure water may be the cause of methemoglobinemia affecting young infants, the result of too high a nitrate content. Gastrointestinal infections such as typhoid and paratyphoid, amebic and bacillary dysentery, and gastroenteritis may also occur In general, infections traced to contaminated well water do not attack the family nearly as often as they do friends who may pay a short visit to the farm, the farm family is immune by reason of long-term contact The use of impure milk and milk products and other foods may result in food infection and food poisoning

Skin Diseases—There are many skin conditions which result from agricultural pursuits Direct contact with cultivated plants or weeds such as primrose, poison ivy, poison oak, sumac, and ragweed may result in dermatitis Farmers are often in contact with detergents or defatting agents that may affect the skin adversely Fungus infections are not uncommon to agricultural workers Examples of such infections are ringworm "sheep skin" (sycosis of the neck and hands), blastomycosis, actinomycosis and sporotrichosis

The bites or stings of arthropods cause lesions that may become secondarily infected The bites of common nuisances such as flies mosquitoes, gnats spiders and ants are very troublesome to some individuals The fine hair of caterpillars may cause extreme irritation of the skin and a generalized systemic reaction Farm workers are usually exposed to insects in much larger numbers than persons living in urban areas This is particularly true for mites, chiggers, lice, and fleas Harvest itch " sarcoptic mange (animal scabies) and ground itch due to animal hookworm may result in dermatitis Physical agents such as sunlight, moisture and extremes of temperature also have their deleterious effects

Pulmonary Disease—Some acute lung diseases are due to inhalation of dust or pollens encountered on the farm Chronic bronchitis may be contracted and asthma is not uncommon Plant spores dust. animal dandruff, and inhalation of fumes or solvents are frequent offenders Continued exposure to lung irritants may cause a chronic inflammatory state that necessitates termination of farm work for the individual

Chemicals—Chemicals are freely used on the farm for combating insects or arthropods that do damage to crops Chemicals may also be used to eliminate common house and barn nuisances such as houseflies mosquitoes, gnats, ants and rodents such as rats or mice For general purposes of control chemicals can be divided into insecticides fungicides, herbicides rodenticides, fumigants, fertilizers, and bactericidal agents A recent release from the Committee on Toxicology of the American Medical Association indicates that there are a quarter of a million brand name chemical products that may be used in the home farming and industry All may be useful but handled improperly may result in severe illness of human beings or animals Besides acute effects chronic delayed reactions and infections may occur It is estimated that each year there are 3 300 accidental deaths from misuse of chemicals No complete catalogue has been made of all available products nor of the combinations of chemicals used at the present time Inhalation of dust, fumes, vapors mists, and gases is known to be a dangerous mode of entrance of poisons Other important modes are swallowing of material in saliva, water or food, absorption through the skin, and traumatic entrance through cuts in the skin or mucous membrane

At the December, 1955 meeting of the American Association for the Advancement of Science in Atlanta, Ga a symposium was held on the topic, "How Dangerous Are Household and Agricultural Chemicals?" The question was covered by members of the Committee on Toxicology and the Committee on Pesticides of the American Medical Association Topics discussed were new chemicals, storage of small amounts of DDT in human beings, harmful effects of chemicals on the skin, and the main channels through which harmful materials can enter the human system Summing up one of the participants stated that the consensus of the meeting was that top priority in chemical accident prevention programs should be given to increasing safety awareness of laymen, wider use of precautionary labeling on products, and more accuracy in death certificates and hospital records through proper identification of the poisonous agents

Mental Health and Psychiatry—A number of problems in psychiatry and psychosomatic medicine are of more than academic interest The statement "Mental depression is more common among rural workers " is found in some psychiatric textbooks Is this statement a fact? Are farm workers more accident prone than workers in other occupations? Are they more careless in their attitude toward hazards connected with machinery or with the handling of animals and birds? Greater emphasis is being placed on mental health and attention in this field should include residents of rural areas

Growth Stimulators—In order to put more weight on animals and birds raised for food consumption diethylstilbestrol and antibiotics have been used for the purpose of growth acceleration Studies are being carried on with relationship to the hazard of diethylstilbestrol and antibiotics remaining in food derived from animals that have received the substances More research needs to be directed to this problem in order to determine if hazards are present

Iowa Program for Investigation

From the review of some of the problems confronting the farmer noted above, one would gather that there is ample reason and opportunity for investigation of conditions affecting the health of the agricultural worker Iowa is a predominantly rural state and, along with similar states, is of great importance to the national economy It seemed appropriate, then, that research in agricultural aspects of medicine be first established on an organized basis in Iowa Departments and divisions of industrial hygiene in graduate schools have made significant contributions to the health of the industrial worker Impressed by the challenge, the establishment of an institute of agricultural medicine at the State University of Iowa College of Medicine was seriously considered A three-year grant was received from the W K Kellogg Foundation to establish an institute and, as of Sept 1, 1955, work on the Institute of Agricultural Medicine was begun and procurement of personnel undertaken

The following staff members were considered desirable for the first year of operation 1 An associate director was selected with knowledge and facility in fields allied to medicine The person appointed comes with experience in a number of disciplines He holds masters degrees in microbiology and chemical engineering, a doctorate major in industrial hygiene and a minor in sanitary engineering, and a certificate in safety engineering The company by which he was formerly employed makes insecticides and pesticides 2 A social anthropologist, rurally oriented, was appointed One cannot study disease without considering accompanying social implications There are a number of cultures in Iowa and, though the groups represented may be small, study with relation to differences that might appear was considered worthy of trial The cultural groups include American Indians, the Amish, the Mennonites, and sizable segments of population of German and Bohemian extraction 3 A veterinarian, preferably with public health experience, was considered necessary since the zoonoses are important 4 A statistician was needed for the collection, compilation, and testing of data During the next two years, as conditions permit, a toxicologist, a safety engineer, and a health educator may be added

Plans for the institute are essentially as follows Along with consultants, staff members will attempt to determine the number, the extent, and the importance of the health problems confronting the farmer, particularly in Iowa All known sources of information will be tapped Close working relationships are already being developed with farm organizations, health departments, physicians, and hospitals This problem will not be as readily accomplished as might appear at first sight Most of the conditions affecting the agricultural worker are not reportable, hence a means must be found to determine at least in a rough way what the problems are The exact approach has not been decided upon, but the survey method will likely have to be used for a few representative counties in the state

Having determined the problems involving the health of the agricultural worker, it appears that the next phase would entail their assessment on the basis of adequacy or inadequacy of present methods of prevention and treatment and the necessity of fostering research in their solution In order to investigate specific problems, the institute will collaborate with the Iowa State Medical Society, the state hygienic laboratories, the state department of health, many departments in the college of medicine, the college of veterinary medicine, the extension service in the college of agriculture, and the college of engineering at the Iowa State College at Ames In addition, we hope to establish a close working relationship with the Iowa Farm Bureau Federation, the strongest independent farmer group in Iowa The importance of the general practitioner cannot be overlooked His intimate knowledge of the families and community he serves is paramount to success in undertaking the program outlined

The institute will be oriented largely along the lines of preventive medicine and public health and is under the jurisdiction of the department of hygiene and preventive medicine of the medical school Provision of adequate medical care and development of new methods of health education for rural populations are important considerations The results of past labors, of present work, and of future research must reach the farm worker in understandable terms, and preventive procedures must appear worthwhile before general application can be expected to be effective or more effective than now obtains The establishment of the institute is on a modest scale, and it is hoped the state of Iowa will furnish funds for continuation and enlargement of activities after the grant is terminated The present effort is looked upon as a beginning attempt to solve farm health problems and to direct efforts toward their prevention Besides the purposes mentioned, pertinent data relating to agricultural medicine will be collected and collated and be made available to any interested worker or group that can use it Problems will be reviewed from time to time, and all current reports will be abstracted and catalogued

Summary

Some serious health problems confronting the agricultural worker have not been solved Although work in the field of agricultural medicine has been carried out in the past and is presently under way, little attention has been given to the over-all problem Because of poor reporting of the zoonoses and of other diseases affecting the farm worker, the basis for sound preventive measures is not available for many diseases The Institute of Agricultural Medicine has recently been established at the State University of Iowa College of Medicine to determine the important problems affecting the health of the farm worker with the hope that investigation may lead to solution of some of them

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4 Wardle N J You re Not Safe Yet, Iowa Farm Science 10 9 12 (Oct) 1955

CURRENT PREVENTIVE PROBLEMS OF CHILD HEALTH

Leslie Corsa Jr., M D , Berkeley, Calif

• Problems hitherto of secondary importance in child health are becoming more conspicuous because others formerly of primary importance have been solved Premature birth has become one of the largest problems, and attention should be shifted somewhat from its treatment to its prevention This would help to reduce perinatal mortality and morbidity and to avoid the dilemmas relating, for instance, to incubators, oxygen, and retrolental fibroplasia

Infections by micro organisms remain the greatest cause of death, of hospitalization, and of disability, and the most prevalent and serious are the acute respiratory diseases Another important cause is accidents, and a third is chronic disease Methods of prevention and techniques for health supervision are still evolving The private physician has a unique opportunity to guide the direction of future progress

Preventive medicine as an integral part of the practice of medicine is nowhere so highly developed as in the branches concerned with human reproduction and with human growth and development obstetrics and pediatrics It is no mere coincidence that the greatest progress in preventive medicine during the 85 years since the founding of the Los Angeles County Medical Association has been in the field of maternal and child health I am taking it for granted that we are all so familiar with the dramatic declines in maternal, infant, child, and youth mortality and morbidity rates since the turn of the century that there is little point in repeating them here Instead I should like to turn our attention to consideration of what are emerging as major preventable problems of child health in 1956

Present Efforts in Prevention of Premature Births

Premature birth is one of the largest problems As you know, much more study and effort have gone into keeping premature infants alive after birth than in keeping them in utero until sufficiently developed to survive Following recommendations of the World Health Organization s Expert Committee on Prematurity in 1951 and those of two large conferences on premature births held here during 1952, California s medical and public health professions are placing greater emphasis upon primary prevention of premature delivery itself The present effort is threefold First is the provision of good prenatal care to all pregnant women This places upon the shoulders of those who practice and teach obstetrics and general practice a great responsibility toward the great majority of pregnant women who turn to them for care It happens in California, as in the rest of the country, that the least prenatal care is received and the highest rates of premature births occur in the low economic group, who are cared for here largely in county hospitals Several statewide and local studies are in progress at the present time with the object of seeking new ways to motivate these mothers toward wanting prenatal care, to eliminate obvious blocks that keep those who want care from getting it, and to provide a higher quality of care in areas where it is inadequate

Second is the development of maternal and perinatal mortality committees to study the preventability of these deaths County medical societies, health departments, and, more recently, the California Medical Association have all provided leadership throughout the state in increasing the number and effectiveness of such groups, which optimally include physicians in general practice, obstetrics, pediatrics, anesthesiology, pathology, and public health, as well as nurses, hospital administrators, and social workers Those of you already working in such a group know well the value of this self-searching, educational approach Others who are interested but have not yet begun the job would do well to visit active committees like those in Los Angeles, San Diego, Santa Barbara, and Orange counties, here in southern California

Third is further research into the causes of prematurity, which I will not examine in detail here We need, first, to sharpen our definition of prematurity itself The present criterion of low birth weight (5 5 lb [2 5 kg] or less) established some 30 years ago includes a large number of small babies of normal gestational age, as well as excludes a significant number of larger babies who are actually premature by length of the mother s pregnancy Recent studies from Baltimore, Boston, New York, and San Diego show that contrary to our previous opinions, length of pregnancy based on the first day of last normal menses can be determined in all but a small percentage of pregnancies and is as reliable as birth weight in defining risk of death More important, combining birth weight and length of the pregnancy corrects many of the limitations of weight alone Use of this improved definition in detailed exploration of relationships between prematurity and maternal disorders, prenatal care, maternal nutrition, maternal occupation, and other social and emotional factors may provide clues to help us unravel the multiple mysteries of human labor

One other problem warrants particular mention retrolental fibroplasia It has been hard to escape reading or hearing during the past year that a national cooperative study convicted oxygen in prolonged high concentration as a major culprit in the etiology of this disease, the principal cause of blindness in young children Here is a good example of unintentional chemical poisoning resulting from the faulty hypothesis that, if a little is good a lot is better It

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Chief Bureau of Maternal and Child Health California State Department of Public Health

Read in the Symposium on Progress on Preventive Medicine Los Angeles Midwinter Medical Convention Jan 4 1956 stilbestrol and antibiotics remaining in food derived from animals that have received the substances More research needs to be directed to this problem in order to determine if hazards are present

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Some serious health problems confronting the agricultural worker have not been solved Although work in the field of agricultural medicine has been carried out in the past and is presently under way, little attention has been given to the over-all problem Because of poor reporting of the zoonoses and of other diseases affecting the farm worker, the basis for sound preventive measures is not available for many diseases The Institute of Agricultural Medicine has recently been established at the State University of Iowa College of Medicine to determine the important problems affecting the health of the farm worker with the hope that investigation may lead to solution of some of them

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4 Wardle, N J You re Not Safe Yet Iowa Farm Science 10 9 12 (Oct) 1955

refrigerators The second attempts to acquaint those directly supervising children, principally parents, with the chief dangers and to motivate them to act upon this information Knowledge of the relationships of different kinds of accidents to the state of development of the child has been widely disseminated in recent years, much by insurance companies and much through physicians in their contacts with young families We know, for instance, that we should concentrate preventive education dealing with infants to such things as falls from beds and bathinettes, with crawlers and toddlers to such things as poisons, foreign bodies, and household machinery, with older toddlers to such things as pedestrian-auto accidents and drowning, and so on up to that dealing with older youths who are driving cars, shooting guns, and also drowning Perhaps, our greatest deficit in know-how comes in how to educate the potential victim himself to be alert to danger and, particularly, the potential victim who has already demonstrated high risk by repeated accidents There is much to be said, in theory at least, for letting a child experience minor injury, such as a burn or submersion under proper supervision and after adequate warning of danger, as a means of learning how to avoid serious burns and drowning in later years It is difficult to be alert to an unknown or totally unexperienced danger But there is also much to be said for testing some of these ideas under everyday conditions before we espouse them as solutions Physicians in practice, teaching and public health are all in key positions, both to test such ideas and to put them into full action once they are proved effective

It is interesting that one of the largest groups of accidental deaths of children under 15 years of age is the most easily eliminated from accident statistics and that physicians are in the best position to do this These are the so-called accidental suffocations, sudden deaths, mostly in infants, which have been well established by several pathological studies throughout the United States to be for the most part due to sudden, latent infections largely respiratory and of unknown etiology Since we do not yet know how to prevent most of these deaths, we do not lower the death rate by requiring adequate autopsy and signing them out on the death certificate as infections rather than accidents, but we do, by this simple act, almost halve the number of accidental deaths in infancy and assign their importance as a public health problem to its rightful niche

It is also interesting that one of the smallest groups of accidental deaths in childhood, poisoning, is now receiving the greatest attention from physicians interested in accident prevention The idea of poison control centers, initiated in Chicago two years ago, has spread like wildfire to dozens of other areas in the country from Boston to San Francisco One good reason for this is the large number of possible cases of poisoning, especially in young children, that now come as emergencies to the attention of physicians with pediatric practices In addition to providing expert advice on toxic ingredients and therapy for those relatively rare instances in which this is needed, such centers are proving of great value in measuring the extent of poisoning, in studying the basic causes of poisonings that occur, and in applying this current local knowledge immediately in what promise to be effective preventive programs This same technique can and will be applied to other kinds of accidents Another approach is the development of small expert committees, similar to the maternal and perinatal committees mentioned earlier to study case by case the preventability of fatal accident cases and those requiring hospitalization in an individual hospital or community Some of you particularly interested in accidents might well be among the pioneers in this endeavor

Prevention of Chronic Diseases

I have already mentioned rheumatic fever and nephritis as important chronic diseases of the young Cancer, particularly neoplasms of the brain and leukemia also rank high, but congenital malformations top the list as a cause of death and serious disability among children and continue to be significant into adult life Our knowledge of how to prevent these is pitifully limited to such measures as contraception for those few specific diseases that appear to be genetically dominant, extreme care in keeping pregnant or potentially pregnant mothers from exposure to x-rays, radioactive isotopes, and rubella and perhaps not such extreme care in preventing exposure of young girls to rubella This is a field badly in need of cultivation by large-scale cooperative studies of the type mentioned earlier to confirm and extend laboratory findings relating the incidence of various malformations to many nutritional infectious, and other chemical and physical insults to the mother in early pregnancy

Although not usually classed as a chronic disease, dental caries, like minor accidents, remains an important disease of highest prevalence despite the well-established scientific knowledge that if we all drank water with the proper amount of fluorine added easily controlled by simple engineering techniques, at least half of our present tooth decay would never occur Although all of our medical, dental, and public health professional associations have repeatedly endorsed fluoridation of public water supplies, we have not all fulfilled our professional responsibilities to both our communities and our individual patients in taking local leadership on this issue Instead, the small highly vocal and geographically mobile group of opponents in the name of everything from freedom of religion to communism have so far managed to outsmart us on many occasions Here is one clear-cut issue on which your professional opinion stated repeatedly in public and in your private conversations both in and out of the office can directly influence the future dental health of your own children and grandchildren, and of countless thousands of others

Other Goals

Our concept of health in 1956 is not limited to physical disease I am sure we all agree with the World Health Organization that the health toward which we *aim includes not only the absence of dis* ease and disability, but also the greatest attainable physical, mental, and social well-being This is, admittedly, a large order, but already medical leaders are active in primary and secondary prevention of mental retardation, behavior problems, juvenile delinquency, and other mental health problems of the young, as well as in fostering better physical and mental health of adults by providing opportunities for optimum growth and development of all our children

The provision of medical health supervision for children is still evolving Such services for infants, young children, and school children were initiated by medical leaders and voluntary agencies some 50 years ago and were rapidly expanded, as a joint function of medicine and government in the United States, to be available to all children During this period a generation of physicians has been trained to provide these services as part of the practice of medicine, until today the vast majority of families of young children turn to their family doctor, be he general practitioner or pediatrician, for health supervision There will always be, however, a significant group of young families who cannot pay the full costs of this care For them, the medical and public health professions constantly need to devise better methods of making care available through new combinations of the family doctor and all other community resources For no group is this more needed, and more difficult to provide, than for the families of migratory agricultural workers who traverse our green valleys, north and south, summer and winter Both practicing physicians and agricultural employers in these areas have done much to alleviate the primitive conditions of these workers and their children, but the job is far from done There will always be, too, new and changing health problems to challenge our present techniques and stimulate development of new ones Few have before them the opportunity of the private physician for meeting such challenges of child health in both city and country and for guiding the direction of future progress in preventive medicine for our ever-growing new generation

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NEWER CONCEPTS IN CHRONIC DISEASES

Lester Breslow, M D., Berkeley, Calif

• *The problem of chronic disease must be attacked in two ways by improved treatment and by more vigorous efforts at prevention Improved treatment includes not only new methods of medicine and surgery but also increased emphasis on motivation, personal interest, family support, and community resources*

The hope for prevention brightens as environmental influences on disease are recognized and means of controlling them are discovered Some environmental factors in cancer are well recognized, some of them, whether chemical or physical, are occupational and amenable to control Multiphasic screening projects are valuable in bringing about early daignosis of threatening disorders The medical profession carries a substantial responsibility for the proper development of the campaign against chronic disease

Perhaps the most important new concept in chronic disease is that something can be and is being done about it We no longer consider the chronic diseases —heart disease, hemiplegia from cerebrovascular accidents, cancer, diabetes, arthritis, and the many other long-term illnesses—as inevitable concomitants of age The former notion that these represented some mysterious "degenerative" process about which the physician could do very little is giving way to a more hopeful and a more realistic view

In the mid-19th century physicians looked upon tuberculosis with the same fatalism we are now overcoming in respect to other chronic diseases They called it consumption and regarded it as a "weakness of the lungs" in certain families A member of such a family was simply fated to become ill and perhaps die at an early age because of some "constitutional" factor We have progressed a long way in our understanding of tuberculosis Perhaps the most significant advances were recognition that the disease could be successfully treated (at first with rest and adequate diet alone) and recognition that the disease had an external cause (a micro-organism), thus opening the path to prevention

In the mid-20th century the view that the chronic diseases are "degenerative" has no greater justification than did the old-fashioned view of tuberculosis True, our knowledge of some important chronic diseases is quite rudimentary, micro-organisms appear to play no role in most of them Still, each year brings new evidence that these diseases arise out of the external conditions of life, rather than from some innate biological process itself Thus, rheumatic heart disease is a consequence of uncontrolled infection with the Streptococcus Lung cancer is proving to be a result of cigarette-smoking, certain occupational exposures, and perhaps other environmental factors Abundance of food, particularly excessive caloric intake in relation to energy requirements in modern life, predisposes to hypertensive heart disease, diabetes, and other chronic diseases

Advances of Medical Science

Medical science is extending our knowledge and ability to deal with the chronic diseases in two directions—toward better therapy and toward prevention First, it may be appropriate to discuss newer concepts in the treatment of long-term illness from the point of

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Read in the Symposium on Progress in Preventive Medicine, Los Angeles Midwinter Medical Convention, Jan 4, 1956 view of a public health physician Best known to the practicing physician are the technical advances in therapy new drugs for hypertension and coronary heart disease, hormonal therapy for certain forms of cancer, surgical approaches to heart disease and once hopeless types of cancer, and radiation Physical medicine in neuromuscular disease is one of the latest to gain favorable repute

These dramatic advances have tended to dull our sensitivity to a more subtle and yet, in the long run, perhaps a more fundamental aspect of therapy That is the combination of human support and impetus toward independence that is so much needed by long-term patients This idea may be illustrated by the all too frequent case of an elderly person suffering from hemiplegia following a cerebrovascular accident Without family or others to express personal interest in his recovery he lies for months and even years in a bed on the ward of a public hospital There are thousands of such patients lying about the wards of hospitals and custodial facilities of this country In times gone by we have neglected them in our hurry to apply new, dramatic treatment to other patients whose outlook seemed more hopeful At least the issue in acute disease is decided more quickly

Now from hospital after hospital come reports that many of these formerly neglected patients on the back wards are being started on the path to substantial improvement What seems most important in this new trend is the expression of real interest in the patients by physicians, nurses, attendants, and others around them The fact that somebody really wants and expects them to get better, simple as this sounds appears to be the critical element in the situation Technical devices, physical therapy, and other improvements are helpful But those with the greatest experience in tackling the back wards of our hospitals assert that the attitude of professional personnel is what often makes the difference between the patient who sinks into a vegetative existence and the patient who recovers sparkle in the eye and movement of limbs A spirit of rehabilitation infused into a staff group even by a single physician may achieve remarkable results, this has been demonstrated over and over again Patients who have been lying around for years are stimulated and helped to achieve independence in self-care, to leave the hospital and even to return to work Every measure of improvement is useful, not only in a better life for the individual but also in less need for attendant care

Probably more important is that patients with conditions that might readily become debilitating, in the institutions where the new patterns of care prevail, are turned toward recovery before they have been carried down to a passive existence Patients with hemiplegia, to use the same example again start activity within a few days after the cerebrovascular accident if the vascular condition appears reasonably stabilized An attitude of overprotectiveness expressed in the prescription of weeks of inactivity, may be harmful rather than therapeutic in this, as in many other chronic diseases

One factor that may have accounted for our former neglect of such patients was the tremendous burden of acute illness such as otitis media typhoid fever pneumonia, and the corresponding emphasis on the episodic aspect of medical practice We were inclined to concentrate on the patient's acute condition and what could be done about it with surgery drugs or other relatively quick therapy Medical schools taught us to pay prime attention to the question "What is the patient's complaint?" In chronic disease the most important question often is "What kind of a person is this?" In acute disease the physician enters the patient's life for a brief period and may help turn the tide, in chronic disease the physician must enter the patient's life for an indefinite period and help to sustain the patient through ebb and tide again and again

As our ability to deal with episodic acute disease has progressed, paradoxically the burden of illness seems to have grown But now it is chronic in nature Accordingly medical practice must change and is changing Medical education is beginning to reflect the new responsibilities of physicians to give long-term support and guidance to patients and their families Some schools, for example, now assign the medical student early in his career the task of overseeing the health of a family for two or three years This provides him with insight into the course of chronic illness and the role of the family in it

New Concept of Family Physician

From this concern about chronic illness and the response of medical education is emerging a new concept of the family physician The term family physician is taking on an expanded meaning from its former use to designate the physician on the back country road with the little black bag The new idea of family physician grows out of recognition that the family should be the strongest support in a patient's struggle against disease, especially chronic disease Actually the family may play a positive or a negative role It may provide the affection and hope needed to overcome long-term illness but unfortunately the family sometimes contributes to the patient's trouble Many chronic conditions such as hypertension obesity and alcoholism appear to "run in families" Although the hereditary aspects of these conditions are not fully understood evidence is piling up that these conditions reflect the life of the family rather than *some genetic process*

It thus becomes the job of the physician to deal with these problems on a family rather than on a purely individual, basis Insight into these subtle family relationships and how they can be strengthened to aid the patient is a most important task of the physician in dealing with chronic illness Not all patients have families Or the families may not from their own resources—financial educational moral, and other—be able to provide the support needed by the patient Here the physician must look to the community for assistance

Community Resources

Most communities have developed a variety of services to assist the physician in dealing with chronically ill patients Health departments should be mentioned first Like practicing physicians, health officers are finding that chronic illness looms more and more prominent in the health of the community So health departments are beginning to reorient their public health nursing, nutrition, laboratory, health education, statistical and social services to meet this paramount health need While these professional services are still far from being sufficiently developed, physicians in many communities will find substantial help in their health departments in caring for chronically ill patients Physicians who have patients in need of home nursing care, specialized diets, or social services will often get expert assistance from health departments Even though the local health department may not be able to provide the service directly, members of the staff can assist the physician in finding needed help for his patients in other resources in the community Also, the health officer may be in a position to assist physicians and others in the community concerned with such problems to develop necessary services, whether they ultimately come under public or private auspices

Most big cities of the United States have visiting nurse associations which are increasingly responding to calls from physicians for bedside care of chronically ill patients Bedside care is usually a key element in care of the long-term patient at home, and physicians who refer to the visiting nurse association will often achieve a substantial benefit for their patients Some communities have undertaken more fully organized home care services Generally these provide for medical supervision, bedside nursing care, social service, and specialized professional skills such as nutrition, laboratory, and physical therapy as needed This pattern of organized home care services is developing rapidly over the country as a means of providing adequate care for the patient It is based upon use of family resources and community professional services without the expense of building hospital beds Physicians will want to keep in close touch with such developments in their own communities

Also as an aid to the physician, several communities are forming organizations known as central services for the chronically ill, chronic illness service centers, or similar designations These keep current information as to where needed services can be obtained in the community, whether these be hospital, nursing home, custodial, or home care services Thus, communities are beginning to establish a whole range of services that offer practical assistance to the physician in his care of chronically ill patients It therefore seems appropriate to direct the attention of practicing physicians to the resources that are now becoming available—community resources upon which the physician may draw for concrete help in solving his patients' problems

Prevention

Now to consider the prevention of chronic illness As with any disease problem, the ultimate hope for control lies in prevention Until the past few years, the medical profession (including that segment in public health) has taken a rather dim view of the possibility of preventing much chronic disease In 1951 the Commission on Chronic Illness, supported by the American Medical Association, the American Public Health Association, the American Hospital Association, the American Public Welfare Association, and many other organizations concerned with health, sponsored the National Conference on Chronic Disease Preventive Aspects From that conference, the commission assembled and subsequently published a substantial body of knowledge with practical application to the prevention of chronic disease It served as a rallying point for a new attack on the problem

Out of the conference came the concept that the prevention of chronic disease includes two phases primary and secondary Primary prevention means to avoid the occurrence of disease entirely, for example, by occupational hygiene to prevent the development of silicosis Secondary prevention means to halt or retard the progression of disease into disability and premature death through early detection and adequate treatment These concepts can be illustrated with specific examples indicating how recently acquired knowledge about the prevention of chronic disease may be incorporated into the everyday practice of the physician

Primary—Primary prevention of heart disease is a reality, particularly as a result of understanding the infectious origin of some forms of heart disease Congenital defects of the heart and great vessels, as well as other organs, are caused in part at least by rubella during the first few months of pregnancy Cases of heart disease following diphtheria and syphilis, fairly common only a few decades ago, are becoming rare as a result of effective means for the control of these infections Rheumatic heart disease is declining rapidly with the widespread attack on streptococcic infection through use of penicillin Rheumatic fever is a familial disease, repetitive episodes being likely to occur in any member of a family where the disease has once appeared, unless streptococcic infection is rigorously controlled Hence, the primary prevention of rheumatic heart disease requires maintenance doses of penicillin for the child with the disease and prompt suppression of streptococcic infection whenever it occurs, especially among siblings of such a child Recent decades have brought a sharp decline in cardiovascular disease due to infectious agents Present knowledge if effectively applied should lead within a few years to practical cessation of new cases The occurrence of diphtheria or smallpox in an American community today produces a sense of shame in the health officer and other physicians How soon will the same be true of rheumatic fever?

When one turns to other forms of heart disease, the outlook for primary prevention is not so favorable However, even in respect to hypertensive and arteriosclerotic cardiovascular disease, progress may be noted Three factors associated with the hypertensive disease process offer the physician some possibility of dealing with the problem on a preventive basis a definite familial tendency, obesity, and a characteristic personality pattern Of these, obesity presents the clearest relationship and opportunity for preventive action Obesity is not only highly correlated with morbidity and mortality from hypertension but reduction of weight in the obese-hypertensive patient usually results in a corresponding drop of blood pressure It appears reasonable that maintenance of optimum weight, especially where a familial tendency to hypertension is known, will help keep the blood pressure at a more normal level

Control of obesity, now our nation's principal nutritional fault, would contribute to a reduction in not only hypertensive heart disease but also diabetes and other chronic diseases If there is any one factor that runs through the gamut of chronic disease in America today, it is that as a people we have upset nature's balance between food intake and energy output To restore a proper balance in the individual person is often difficult Hence, we need to stress the maintenance of optimum weight from childhood on For patients who present long-standing obesity, the physician may find his own efforts strengthened by using nutrition consultation from local health departments or other community agencies and by referring patients to weight-reduction groups that are springing up in many communities These groups appear to offer obese patients some of the same benefit that alcoholic patients derive from Alcoholics Anonymous Knowledge of how to prevent arteriosclerotic heart disease, while still quite meager, may increase during the next few years through the rigorous pursuit of several currently prominent hypotheses, such as excessive consumption of fats or calories generally, too little physical exercise, anxiety and other psychic factors, and cigarette-smoking

Next to cardiovascular disease, cancer causes the greatest mortality in the United States today The mystery of malignant neoplastic growths, however, is also beginning to yield, with ever-increasing evidence that some of the most important forms of cancer are due to environmental conditions It has long been generally accepted that excessive sunlight induces skin cancer in light-complexioned persons, that exposure to certain dyes may cause bladder cancer, and that the old "chimney sweeps' " cancer of the scrotum developed because of exposure to soot Now epidemiologists are finding that radiologists and the survivors of atomic bombing are dying at an excessively high rate from leukemia, that cigarette smoking, certain occupations, and perhaps other factors cause lung cancer, and that many occupational exposures to carcinogenic agents may have been overlooked in this country

In the current situation with respect to primary prevention of cancer, the physician has two responsibilities The first is to note the relationship of environmental factors, especially occupational exposure, to cancer in his patients and to report his observations This area of knowledge is developing rapidly now, but perhaps not rapidly enough to keep pace with the introduction of new physical and chemical agents into our working and living environments The second responsibility, of course, is to apply the present knowledge of how to prevent the occurrence of cancer For the industrial physician concerned with the health hazards of the work place this has a clear meaning—control the environment For the physician in general practice the problem is more complex What shall he advise his patients now as to cigarette-smoking or to x-ray treatment of lymphoid tissue? Each physician will of course want to examine the evidence and come to his own decision In respect to cigarette-smoking and lung cancer, the conviction is growing—based on cogent evidence—that we should strongly caution young people against the danger of the habit

Secondary—There are other examples of primary prevention of chronic disease made possible by recent advances in our understanding of their causes In the present state of knowledge, however, secondary prevention is an even more practical approach to the problem for most physicians Diabetes may serve as a good illustration Here is a disease which meant death a generation ago when it occurred in severe form Nowadays the patient with diabetes, no matter how severe, when it is discovered early and controlled adequately, possesses an almost normal life expectancy The problem is to find the cases early and assure continuous, good medical supervision Means for the detection of diabetes are constantly being refined, yet there appears to be a lag in their general use For example, reliance upon a fasting urine specimen for screening purposes is still too common, considering the evidence that many cases will be missed without a blood sugar test A simple reliable, and inexpensive blood sugar test is now available—the Wilkerson-Heftmann test It requires only a drop of blood, from fingertips or vein, and can be performed on an individual basis in the physician's office or on a mass scale It is estimated that about a million Americans have diabetes and know it, another million have the disease but do not know it because it has never been detected Here is a marvelous opportunity for preventive medicine—find the million undiscovered cases of diabetes and by proper care prevent the vast amount of blindness, infection, and other disability and premature death that will otherwise occur

This same concept of secondary prevention through early detection may be applied through appropriate use of the chest x-ray not only for tuberculosis but also for lung cancer, the cytological test for cancer (Papanicolaou smear) in cancer of the cervix, the tonometry test for glaucoma, and in many other ways Systematic application to apparently well adults of devices for early detection of important chronic diseases promises to be one of the most beneficial advances in the modern practice of preventive medicine With proper use of screening tests in examining 1,000 adults of appropriate age and sex distribution, one may expect to discover the following numbers of cases of previously unrecognized disease diabetes, 10, glaucoma, 20, cancer of the cervix, 3, obesity, 100, hypertension, 15, and visual defect due to refractive error, 50, and an occasional case of anemia tuberculosis, lung cancer, rheumatic heart disease or other chronic condition All of these are diseases for which the physician can undertake treatment in the hope of accomplishing substantial good

The American people are becoming aware of the possibilities inherent in this aspect of preventive medicine Newspapers and popular magazines carry stories about the annual detection drive of the American

Diabetes Association, "G-days" for glaucoma detection, the mass attack on cancer of the cervix through screening more than 100,000 women in Memphis, Tenn , and the many other successful ventures in early discovery of chronic disease Labor unions, with renewed interest in health because of health and welfare funds, are anxious to take advantage of every opportunity that will help to avoid disability and premature death for their members

One method of accomplishing secondary prevention on a sizable scale, with economy and efficiency, is through multiphasic screening This is the application of a battery of screening tests (including chest x-ray, blood tests for diabetes and anemia, height and weight determination, cytological test for cancer, visual acuity, and tonometry) to large groups of apparently well individuals All persons with test results suggestive of some abnormality are referred to their own physicians for necessary diagnostic and follow-up care In multiphasic screening projects with eight or more tests, this means that over half the apparently well persons screened will be advised to consult their physician for a specific reason, as well as for general health maintenance care Experience has repeatedly shown that most people will respond favorably to this appeal, whereas they do not respond so well to general advice to "see your physician for a health check-up'

Multiphasic screening projects have been conducted successfully by health departments, voluntary health agencies, county medical societies, industrial medical services, labor unions, and other agencies Fundamental to success, of course, is the understanding and participation of the medical profession in the community Multiphasic screening, like other new ventures in the organization of health service, has encountered a certain amount of misunderstanding But as its principles become better known, and experience with it evaluated, it appears likely to become an important feature of modern preventive medical practice, one in which the practicing physician will play an ever more prominent role

In all of this interest and activity it appears that a new type of health maintenance program is emerging —a type for all adults that may take its place alongside the achievements of the past few decades in health maintenance during maternity and infancy One may indulge in semantic arguments about whether it is all "true preventive medicine" or not But the facts remain that it is feasible, that the public is beginning to understand and want it, and therefore in a democratic society will get it, that the medical profession carries a substantial responsibility for its proper development, and that it will reduce the burden of ill health upon our people

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IMPACT OF MODERN THERAPY ON TUBERCULOSIS

James J Waring, M D , Denver

• The reservoir of infection from which new cases of tuberculosis spring is not decreasing as it should, and the spectacular decline in mortality in recent years has not been accompanied by a proportionate decline in morbidity The tuberculous population is kept nearly constant, despite recoveries, by new cases and by a formidable number of relapses Patients treated at home with antibiotics sometimes reach the sanatorium later after developing a resistant strain of the infecting organism

The new chemotherapeutic drugs have brought about an astonishing reduction of toxic symptoms in the patient, decreasing need for bed rest, improved outlook for surgery, prevention or cure of lethal forms of the disease in childhood, and many other benefits It is still necessary, however, to direct every effort to the drying up of the pool of infection from which the new cases come

In simple terms How are we getting along in our campaign to control tuberculosis? If we are accomplishing good, as undoubtedly is the case, what are the evidences? And, why are we doing good? There is an ever-varying reservoir of infected persons, reactors to tuberculin if and when tested In infancy, some of these reactors, recent converters, will develop one or more of the fatal forms of postprimary tuberculosis, e g , tuberculous meningitis, miliary tuberculosis, progressive pulmonary tuberculosis, or other forms of postprimary tuberculosis, including the extrathoracic complications At any age, recent converters may shortly develop clinical tuberculosis In the main, however, clinical disease will appear in those who became infected at some previous unknown, indefinite time, perhaps years before a tuberculin test was done Recently, Professor Debré of the University of Paris said that in France 12% of school children infected at age 7 will develop manifest tuberculosis before the age of 20 The younger the child, the greater the risk, and the sooner the onset of clinical disease after infection The risk is particularly great when first infection occurs at puberty

Shirley Ferebee and Carroll Palmer, in the U S Public Health Service studies of tuberculosis, found that in school children in Puerto Rico three-fourths and in Georgia four-fifths of clinical tuberculosis developed subsequently among the "positive reactors" Obviously some of these reactors must have been recently infected Palmer in his three-year study of 69,000 Navy recruits after induction found only 10% to be reactors, but the subsequent morbidity rate per 100,000 person-years was 20 for the nonreactors and 132, or more than six times as much, for the reactors

Infected persons with active disease, especially those with advanced pulmonary tuberculosis, are potent

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Read in the Symposium on Progress in Preventive Medicine, Los Angeles Midwinter Medical Convention Jan 4, 1956 spreaders of tubercle bacilli and therefore make up the "pool of communicable disease" Sooner or later, some die and pass dolorously out of the pool, others make perfect everlasting recovery and also pass, but joyfully, out of the pool Many make apparently good arrest but sooner or later relapse Others make what we have called "good chronics" and neither die nor get well but remain for a long time more or less able-bodied or crippled, but potentially intermittent spreaders of disease

According to reports,[1] in some countries patients with relapses comprise a large proportion of the additions to the group of persons with open pulmonary tuberculosis In the United States, relapses are reported in about 115,000 cases per year An increase in the number of these relapses began about 1948, shortly after the estimated date for the beginning of the chemotherapeutic era It is possible that a relation will be found between an increased number of relapses and the bacterial resistance that appears during the course of antimicrobial treatment, especially inexpert antimicrobial treatment Ickert[illegible] says "The discrepancy between the trends in the curves of mortality and morbidity and in particular the gradually increasing number of relapses, dampens our hopes of continued success in the fight against tuberculosis"

In brief, the volume of the "pool of communicable disease" (infectors) is constantly increased by new victims from among the reactors, it is reduced by those who pass out to recovery or death, it is increased by those with relapses The great feeders of this pool are the new victims from the reservoir of reactors and those with relapses from the inactive group The total number of "infector" cases, old and new, is estimated to be three or four times the new cases reported during the same period All our efforts should be directed at "drying-up" this pool

Criteria of Success

What are the criteria for estimating success in our campaign? The best indexes of the prevalence of tuberculosis are the prevalence of infection, morbidity reports and mortality records

Prevalence of Infection—As estimated by the tuberculin test, this index is unreliable since doctors are not using the test to the greatest advantage Figures furnished Drolet[2] by the surgeon general of the U S Navy for the incidence of infection with tuberculosis among one million naval inductees, white and Negro, in 1952 showed about 10% to be reactors, in 1953 5 3% were reactors, and in 1954, 4 6% were reactors Comparative figures for service inductees in the British Isles show 66% to be reactors among 3,500 servicemen between 18 and 20 years of age According to Teague (1952), the incidence of reactors to old tuberculin (first test) of children aged 16 years in three Philadelphia high schools tested at 10-year intervals fell from 84% in 1929 to 43% in 1939, and to 16% in 1949 Pope and Gordon's[3] figures for grade school children in Massachusetts show the same remarkable decline The reaction rate dropped from 28% in 1924 to 14% in 1939, and to 2% in 1955 As they say, "If these figures are representative, there certainly is no lag in the rate of decline of infection compared with the mortality rate in this country"

Morbidity Report—Regulations requiring notification of open cases of tuberculosis exist in about 50 countries, but because physicians neglect to register their cases, these morbidity records are imperfect Between 15 and 20% of all cases in the United States are first reported on death certificates In 1953 in the United States over 5,000 cases of tuberculosis were reported for the first time on death certificates Records for England and Wales in 1950 show that about 15% of persons who died of tuberculosis were not known to public health authorities In Germany for the same year the corresponding figure was 10% Between 1947 and 1953 for the United States, Canada, France, and Germany, the decline in morbidity was little more than half the decline in mortality

Mortality Records—Mortality statistics are most reliable, but they do not run parallel with morbidity According to Dr James E Perkins, managing director of the National Tuberculosis Association, the spectacular decline of the tuberculosis death rate, 53% since 1950, began to slow down in 1954 Since 1950 the annual incidence rate, the number of new cases per 100 000 population reported each year has fallen only 20% (table 1) It is quite possible that greater effectiveness of diagnosis largely due to mass x-ray surveys and more experience at the level of the general practitioner has uncovered a lot of previously unsuspected tuberculosis, "new cases," but this does not represent a real increase in morbidity

Table 1—*Tuberculosis in the United States—Yesterday*

	1947	1953	Decrease % 1947-1953
Mortality 100,000 population	33	12	64
Morbidity new cases	134,000	106,000	21
			Decrease %
Infection tuberculin test reactors	1947 %	1954 %	1947-1954
New York children 15 yr old	28	12	57
U S Navy recruits	9-11	4 6	54

Since 1948 it has been reliably reported from different parts of the world that the recent decline in mortality from tuberculosis has not been invariably accompanied by a simultaneous decrease in tuberculosis morbidity Authenticated figures show a greater decline in death rate than in case rate between 1947 and 1953 for the United States, England, Wales Norway and Sweden, France, and New Zealand

According to Perkins,[4] in 1954 for the first time in several years the prevalence of tuberculosis as estimated by the number of known active cases in this country at any one time, that is the volume of the "pool of communicability" decreased slightly Although the tuberculosis case fatality rate is much reduced the incidence of new cases and the percentage of cases going on to complete cure have not declined in proportion Also the number of relapses is still formidable therefore the total number of active and inactive cases requiring medical supervision, the "pool of possible communicable disease" as now reported, is not decreasing as it should and doubtless will

Now, it is an uncontested fact that, for very many years, almost all over the world the death rate from tuberculosis has been steadily declining Roughly, in 1900 in the United States it was almost 200 per 100,000 population and in 1945 just before the "chemotherapeutic era," about 40 per 100,000 population (In 1954 it was 10) According to Drolet,[2] between 1930 and 1940 in 30 different countries the decline in the death rate from tuberculosis averaged almost 25%, while between 1947 and 1953 the decline in the death rate in the same countries exceeded 60%

We can say that the previously recorded steady decline in number of persons infected, as estimated by the tuberculin test, and since 1947 the reduction in number of those dying of tuberculosis have been dramatically accelerated Without doubt, earlier diagnoses, chemotherapy, improved anesthetics, more and better surgeons, organized health education, and generally improved living conditions are largely responsible for these dramatic changes (table 2) From the epidemiological standpoint, it seems clear that susceptibility to infection with the tubercle bacillus is general, but susceptibility to tuberculous disease is individual!

TABLE 2—*Tuberculosis in the United States—Today*

60 million infected
400 000 active cases
Of these 150 000 not identified
100 000 new cases 1955
500 000 with inactive cases
Secondary chronics' current problem
Deaths, 1955 about 15,000
Every half hour one person dies

Problem of Control

Although the "miracle drugs" have radically changed for the better the treatment of tuberculosis, they have at the same time greatly magnified the problem of its control Tuberculosis has been converted from a "killer" to a "crippler"! Tuberculosis is less and less a mortality problem and more and more a morbidity problem! The dead "lunger" no longer spits tubercle bacilli, but the "lunger," inadequately cured by the miracle drugs with or without surgery, remains alive and potentially a spreader of disease From the 1954 report of the subcommittee on epidemiology of the International Union Against Tuberculosis, I gather that in recent years, since the general use of antibiotic drugs, relapses have been observed in increasing numbers

If the new drugs are most effectively used, cures will be increased, early and minimal disease will be cured before it becomes advanced disease, relapses will be infrequent, the number of infectors will shrink, and, consequently and coincidentally, the number of infected, the chief feeder of the "pool of communicability," will decrease On the contrary, if the new drugs are not expertly handled, lives will be saved but not so many, incomplete cures will be frequent, chronic disease due to "resistant" bacilli will be more common, relapses will be frequent, and the "pool of communicability" may overflow! As Perkins[4] puts it "Has death from tuberculosis merely been postponed, not prevented, for a number of patients?"

Formerly, the tuberculosis sanatorium served three most useful functions, as an isolation hospital, a treatment hospital, and a training school, where the patient learned from other patients as well as staff doctors and nurses all about tuberculosis, how to get well, how to stay well, and how to protect friends and relatives Will the "flight from the sanatorium," the closing of sanatorium doors, a much exaggerated affair, by the way, turn loose in the homes and on the streets a horde of uninstructed, incompletely cured "lungers" spitting resistant tubercle bacilli? The pool of contagious cases with positive sputum may increase in numbers, but the average of infectiousness be diminished or increased depending upon the incidence and the menace of resistant bacilli In other words, we may have more people spitting fewer tubercle bacilli, whereas formerly we had fewer people each spitting more tubercle bacilli It is too early to appraise the epidemiological significance of resistant or attenuated tubercle bacilli, made so by adequate or inadequate chemotherapy How many will spit resistant bacilli? Will contacts of these infected persons develop a form of tuberculosis quite unresponsive to chemotherapy? Time will tell! At present, we can say that home care and outpatient clinic supervision are now permissible and practical provided an experienced physician keeps in close touch with a cooperative patient

A tremendous medical and public health responsibility is now devolving upon the general practitioner, the public health nurse, city, county, and state health departments, and voluntary health organizations Since we may, I emphasize may, find it advisable to treat with chemotherapy the recent converter of the tuberculin test, under some if not all circumstances, and since most clinical tuberculosis will appear among the reactors, the general practitioner must learn to use the tuberculin test wisely! He must learn the limitations of the physical examination of the chest, clinging to its advantages, he must learn fluoroscopy and the advantages and shortcomings of the chest roentgenogram, he must learn the indications for surgery, and he must learn the fast-changing methods of using the miracle drugs, since inept prescription may cost the patient his able-bodiedness, if not his life Patients with active disease originally treated with chemotherapy by experienced sanatorium physicians usually do well Today an alarming number of patients with active disease caused by resistant tubercle bacilli, originally inadequately treated outside the sanatorium, are now being dumped on the front doorsteps of the sanatoriums These patients often do not do well with further chemotherapy, nor in these instances is surgery as successful as it should be Finally, the general practitioner must never forget that, if he uses home treatment of the tuberculous person, he carries a heavy public health responsibility of continuous supervision, not only of his patient but of other members of the family In other words, he must not only cure his patient but protect the family and neighbors against infection

Some of the immediate practical benefits of chemotherapy may be listed as follows 1 An astonishing reduction in toxic symptoms and a corresponding improvement in well-being and morale of the individual patient 2 A decreasing necessity for prolonged bed-rest, with consequent improvement in morale of the patient 3 Rapid preparation for necessary surgery and a great reduction in surgical risk 4 A rapid reduction in cough and expectoration and the conversion of sputum from positive to negative (The public health importance of this cannot be overestimated) 5 The prompt reversal of progressive disease to regressive with consequent limitation or prevention of irreversible damage to the lung with its inevitable prolongation of infectiousness and invalidism 6 The prevention or cure of lethal forms of the disease in infancy and early childhood 7 A reduction in the size of the "pool of communicability" by the cure of early tuberculosis before it becomes advanced disease 8 A further reduction in the reservoir of infection, already in progress many years, reducing the desirability of mass BCG vaccination, although it will not affect in specific instances the need for the protection of highly exposed persons, e g, infants in tuberculous families 9 Opening of the thorax to the surgeon and the pathologist and so indirectly to the physician, who now finds it possible to correlate more reliably early as well as late pathological changes with symptoms and with prognosis with or without surgery and chemotherapy

The success of the "miracle drugs" in the treatment of tuberculosis has had other more or less unexpected but highly important results It has stimulated study of the metabolism of the tubercle bacillus, cell metabolism, virulence, host resistance, natural and acquired, bacterial resistance, latent infections (bacterial and viral), and bacterial genetics and the search for other antimicrobials, not only against the tubercle bacillus but against other agents pathogenic for man It has enormously stimulated the overlapping basic sciences of bacteriology, microbiology, biochemistry, pathology, and pharmacology

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HEALTH AS AN INSTRUMENT OF INTERNATIONAL POLICY

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• *Human health can be used as an instrument for fostering either good will or hatred on an international scale Examples of the misuse of medical science in the recent past are the demoralization of nations with drugs like heroin and the spreading of accusations about bacteriological warfare*

The constructive use of human health in foreign policy is exemplified in the work of the American Red Cross Commission in Poland after World War I, the Foreign Operations Administration organized by the American government in 1950, the World Health Organization, and the World Medical Association In places where poverty, ignorance, illness, and hopelessness prevail, the rehabilitation even of one poor crippled man is understood and appreciated It is important that physicians understand and participate in these efforts to help people and promote international good will

The subject that I wish to discuss with you briefly is one that on first thought may seem remote from your immediate interests and concern Yet, in these days of a rapidly shrinking world with international and intercontinental travel a matter of hours, health has come to have implications of far greater scope than most of us realize My first glimpse of this came after World War I when, following my discharge from the United States Army in France, I joined the American Red Cross Commission to Poland and spent a year and a half in that country helping to reconstruct the health and medical facilities of a nation that had been devastated by more than four years of war with the passage back and forth across the country of gigantic armies, each of which considered the country as hostile territory Our work was concerned with the organization of food kitchens and medical aid stations along the frontiers, with the reequipping and in many instances reorganization of hospitals, with the development of preventive services for the control of typhoid fever, malaria, smallpox, typhus, dysentery, and even cholera, and with the organization of institutions to care for thousands of children who during the war years had become orphans or had become lost and separated from their parents We worked with national and local government officials, with church and other voluntary local groups

This was an effort of a voluntary organization, the American Red Cross, but the deep appreciation of the Polish people to the American people for this help was expressed not only by the Polish government but also by local groups and by individual little people everywhere In fact, the faces of the people were more eloquent expressions of their feelings of gratitude than any words written or spoken could possibly have been To me more than 30 years ago this seemed to be an effective method of building international understanding and international good will

Exploitation of Health as Foreign Policy

In more recent years the exploitation of health has been utilized as an instrument of foreign policy by certain governments I refer to the practice of the

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Japanese during the war years of forcing opium and heroin upon the Korean and Chinese people until many became addicted to these drugs From then on they were degraded victims of their conquerors, who controlled the supply of the drugs to which they had become slaves Today the Communists are carrying on a similar practice in several countries of the Far East The purpose of this illicit traffic is to obtain money, strategic materials, and the demoralization of the people of the free world

In a report in May of last year Dr H J Anslinger,[1] United States representative on the United Nations Commission on Narcotic Drugs, stated

> Traffic in morphine and heroin from the Communist Regime of Mainland China is increasing and within the past year several Southeastern Asian and other free countries have assumed a place of equal importance with Korea and Japan as places where these drugs are furnished directly by Communist agents in the traffic

Still another fiendish method of exploiting health as an instrument of international policy has been the utterly false propaganda directed against the United States in regard to the alleged use of bacteriological warfare in Korea To refresh your minds concerning this, I quote from the statement by Dr Charles W Mayo before the Political Committee of the United Nations

> This charge of bacteriological warfare was first launched in 1951 by the North Korean Communist regime, but it received little attention from other world Communist propaganda agencies until February, 1952, when the same charge suddenly emerged as the number one theme of world Communist propaganda, culminating in a charge by the Soviet representative before the United Nations General Assembly

These charges were categorically denied by the Secretary of State and the Secretary of Defense of the United States, by the Secretary General of the United Nations, and by the commander in chief of the United Nations Command in Korea However, Dr Mayo continued

> In March and again in June of 1952 the United States brought these charges before the United Nations Security Council and requested that a committee of the International Red Cross, with the aid of scientists of international reputation, investigate the charge and report upon it to the Security Council as soon as possible The Soviet Union used its veto to block such impartial investigation Then in October, 1952, the United States requested the General Assembly of the United Nations to place on its agenda an item calling for an impartial investigation of charges that United States and United Nations Forces in Korea were utilizing bacteriological warfare Such resolution was adopted by the Assembly in April, 1953
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> In the year and a half after the United Nations General Assembly authorized the investigation of these charges by an impartial commission, the opposition and the failure to cooperate on the part of the North Korean and Chinese Communists blocked the functioning of this committee, clearly implying that they did not wish such an investigation
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> During this period the Soviet Union transmitted to the United Nations for circulation to all delegates a document entitled "Report of the International Scientific Commission for the Investigation of Facts Concerning Bacteriological Warfare in China and Korea" The report of this commission, which was composed mainly of well-known communist collaborators, placed great emphasis upon the handwritten confessions of four United States Air Force officers The appearance of these four officers before the so-called Scientific Commission was the climax of the communist propaganda film issued in several languages—English, French, and Spanish—and given world-wide distribution

After the release of these Air Force officers and other American prisoners it was learned that these confessions had been obtained by torture, bribery, and other well-established communist techniques The final appraisal of this propaganda campaign, as expressed by Dr Mayo, states

> It now clearly appears that the entire germ warfare propaganda drive was developed to give expression for broad communist policies concerning the conduct of the Korean aggression the purpose being to discredit the United States in the eyes of the free world and thus to help to isolate it from its allies

Constructive Use of Health in Foreign Policy

After this dismal story of the exploitation of health for political purposes, let us turn to a brighter and far different side of the picture I refer to the manner in which our own government in recent years has been using health as an instrument of foreign policy, a policy that has been carried out primarily through two major agencies with which it has been my privilege to have some contact These agencies are the Foreign Operations Administration and the World Health Organization The decision of our government, particularly the State Department, to promote better health services and better health conditions in many and remote areas of the world, has been based upon the obvious facts that communism, the sworn enemy of our democratic way of life, finds its most favorable soil for growth and development under conditions where the people live in poverty, ignorance, illness, and hopelessness David Key,[2] in a Department of State bulletin, wrote

> From time immemorial most of mankind has been diseased, hungry, and poorly housed For six out of ten human beings, in fact, for nine out of ten in many economically undeveloped areas—these remain the normal conditions of life today As a result, the stability of half of the world is based on a vicious social and economical cycle Poor health means lower productivity, lower productivity means lower standards of living, lower standards of living mean less food, less education and poorer living conditions, these in turn mean poor health Thus the cycle of misery is completed

The government of the United States is attempting to break this cycle by assisting the underdeveloped and underprivileged countries of the free world to raise the standards of living for their citizens From the very beginning the improvement of health has been one of the major goals The agencies through which our government has channeled most of its support for the improvement of health in the less developed regions of the world are the Foreign Operations Administration and WHO

Foreign Operations Administration

The Foreign Operations Administration was an agency of our government that developed, carried out, and supported programs to aid other countries on a so-called bilateral basis, that is, on the basis of programs that were formulated, subscribed to, and participated in by the government of the United States and the government of the other country concerned A substantial beginning in this type of program was made by the so-called Marshall Plan, the Point Four Program, and the Economic Cooperation Administration These agencies were the forerunners of the stronger, better organized, more adequately supported and more comprehensive Foreign Operations Administration This agency was established by Congress to operate for the five-year period that ended June 30, 1955 The job to be done, however, was not yet completed, therefore, as of July 1 of the same year Congress continued these activities under a new division of the State Department known as the International Cooperation Administration

The programs of the Foreign Operations Administration covered economic, industrial, scientific, education, and social welfare activities as well as health activities It is the latter, however, with which we are particularly concerned That our government considers this of major importance is apparent from the fact that last year some 40 million U S dollars were expended for health purposes through this agency, and several times that amount by the governments of the countries assisted Most of these programs were in the less well-developed countries of the world in South and Southeast Asia, the Near East, Africa, Latin America, and Southeastern Europe In these regions more than twice as many people live as live in the better developed regions of North America, Western and Southern Europe, Australia, and Japan

The types of programs supported by this agency include practically all aspects of health and medical services First priority, however, has been given to programs, the results of which are rapid, recognizable, and appreciated, and affect large numbers of people at low cost per person—so low that the host country can practically always take over the maintenance job Specifically these programs include (1) mass campaigns against malaria and yaws and against nutritional deficiencies, such as beriberi, xeropthalmia, and goiter, (2) development of safe community water supplies, (3) demonstration through health centers of services on a community-wide basis, such as sanitation, communicable disease control, health records and statistics, home visiting, maternal and child health, nutrition, health education, and laboratory and general clinical service, (4) advice and assistance in strengthening and stabilizing the organization and operation of official public health services of the government, (5) advice and assistance in planning and designing of hospitals, health centers, laboratories, and other health facilities, (6) development and support of the basic training of personnel for service in public health, (7) the development of medical schools including the provision of training for key medical school teachers, the provision of necessary supplies and equipment, and advisory and consultant services from schools in this country, (8) mass campaigns against other diseases of major importance, such as trachoma, smallpox, typhus, leprosy, and tuberculosis, (9) consultation on sanitary engineering or other specialized services, and (10) special projects, such as demonstration health centers and medical rehabilitation programs[3]

One might raise a question as to whether certain of these projects that reach a relatively few individuals, such as rehabilitation, are justified, when the health needs of the entire population are so colossal There is, however, an aspect of this with which I was greatly impressed in Mexico last spring That is the impact that these personalized services make upon the common people I refer particularly to a rehabilitation program that our government is helping to support and direct in Mexico This program reaches but a small percentage of the numbers of people who are being benefited by programs for improved sanitation and nutrition and for the prevention of such diseases as malaria, intestinal infections, and tuberculosis On the other hand, important as they are, major preventive public health services are little understood or appreciated by the poor, uneducated people who make up the vast majority of the population of that country These people do understand, however, and appreciate what is being done when they see a poor crippled man from their village rehabilitated so that he can lead an active, useful, dignified, and happy life I was deeply impressed with the value of such services in the cold war for men s minds and hearts in which we are engaged

World Health Organization

The other major agency through which our government is working for the improvement of health on a world-wide basis is WHO This organization is a technical agency in the field of health, set up by the governments of the world, within the general orbit of the United Nations, yet administratively independent of the United Nations It has a membership of 84 nations, of which all but nine "Iron Curtain countries" are active supporters of and participants in the work of the organization WHO is concerned with the development and the improvement of sound and effective public health services in the nations of the world The policy-forming body of WHO is the World Health Assembly, which meets annually and is composed of delegates from the member governments It was my privilege to serve as a member of the United States delegation to the seventh World Health Assembly held in Geneva, Switzerland, in 1954, and to the eighth World Health Assembly held in Mexico City, Mexico, in May of last year It is a thrilling and most impressive experience to see the representatives of the nations of the world, irrespective of race, color, language, religion, or social and economic status, meet together to discuss problems and programs of world health

In its relatively short existence WHO has established international services of great value, such as the compilation and dissemination of information concerning the prevalence of epidemic diseases and the development of international standards for biological preparations—services that can be provided only by an intergovernmental health agency It has also exercised leadership in the world-wide control of malaria, a disease that has long been of first importance in many countries of the world but which is now rapidly disappearing from the globe In fact, the last World Health Assembly considered proposals for the total eradication of malaria on a global scale Other accomplishments of WHO have been leadership and direction in mass control of yaws in the Caribbean area in Southeast Asia, and in Africa, the issuance of reports of technical committees of international experts on a wide range of subjects such as mental health nursing, environmental sanitation, influenza, and plague, and the training through fellowship grants of some 2,000 special persons in the field of health from countries that do not have the facilities for such training In addition, the last World Health Assembly gave consideration to the role of WHO in the new international program to develop the peaceful uses of atomic energy As Key[2] states

> The staff of the World Health Organization is composed of 700 health experts from 50 countries, including about 100 from the United States These individuals are sharing common tasks and common interests and are working together toward common objectives They learn to understand each other's viewpoints and to live harmoniously in a world which technology has shrunk so that we all are neighbors
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> WHO staff members, whether at headquarters or on field projects, are likewise becoming acquainted with the peoples they are helping and are identifying themselves with the needs of these peoples This becomes a two-way process, as the villager, the farmer, and the artisan of the economically underdeveloped areas of the world are discovering that cooperative international action can achieve tangible benefits for them in their own lives
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> In this connection I cannot resist retelling a pertinent story about the World Health Organization, which is known in many parts of the world as "WHO" An Indian doctor, working on malaria control in a remote village in northern Thailand, asked the local headman a few questions Had he heard of Mr Nehru? "No" Had he heard of President Eisenhower? "No" Had he heard of WHO? "Oh, yes Mr WHO is the man who sprayed my house, and we have no more sick babies—a very good man" This incident, which could be multiplied many times over, illustrates how the work of the World Health Organization gets to the grass roots and effectively helps the common man

At the World Health Assembly in Mexico City last May, the Minister of Foreign Affairs of Mexico, speaking "in the name of the President of the Republic, and in the name of the entire population of Mexico," stated

> Twentieth century man after the dreadful experience of two world wars, is striving to create a peaceful world! Yet, how can we hope to achieve a universal political equilibrium when more than half of humanity is still victim to plagues which science has vanished in the laboratory but not in fact among the peoples? A world cannot aspire to be called civilized until such time as the aid of science and modern techniques are put into service on a universal scale for the health of man That man is not an abstract idea He is flesh and bone reality In devoting your efforts and ideas to him you are laying the foundation of universal peace, for man's health is the foundation of the social edifice, the workshop of the world rests on his shoulders

These sentiments of the Foreign Minister of Mexico were echoed by Mr Adlai Stevenson in an address at the dedication of the New York University Medical Science Building last June, when he said "Healing, like music, is a bridge between races and nations The secrets of life-giving, unlike those of death dealing, can be made humanity's possession, binding the giver and the receiver ever closer together"

Under the leadership of President Eisenhower, the last session of the Congress of the United States reaffirmed its support of WHO This move is significant and encouraging but it is not enough It is essential also that the people, and particularly the physicians and other health workers of our country, understand and maintain an active interest in and support of these programs Physicians are needed for this work in many parts of the world, but many, many more physicians are needed to interpret these programs and their significance to the people of the United States whose support is essential if they are to succeed

World Medical Association

So far I have discussed the governmental agencies in which physicians of the United States should have a real interest However, I wish to mention a young international organization that is growing rapidly in membership and in influence in the field of health and medical services throughout the world I refer to the World Medical Association This association is the world organization of physicians as a professional group It is the equivalent on the world scene of the American Medical Association in the United States It is composed of medical societies of the world, with the American Medical Association playing a leading role In addition to association memberships, it allows for personal memberships on the part of physicians through supporting committees, which now exist in several countries, including the United States The World Medical Association, which was founded after World War II at the initiative of leaders of the profession, particularly of the United States, Canada, England Latin America, and France, has grown in influence and importance as the voice of the physicians of the world Annually, at its assemblies and at council meetings, it brings together leaders of organized medicine to consider the broad problems facing the physicians of the world Among the contributions that the World Medical Association has made during its brief life are the development of the International Code of Medical Ethics, which is becoming increasingly well known as the modern Hippocratic Oath, and the sponsorship of the first World Congress on Medical Education, held in London in 1953, a meeting that has given stimulation and direction to the improvement of medical education throughout the free world Currently it is undertaking leadership in the field of occupational health on a world-wide basis Dr Louis Bauer, past-president of the American Medical Association, is the executive secretary of the World Medical Association, Drs Gunnar Gundersen and Edwin S Hamilton, members of the Board of Trustees of the American Medical Association, are members of the council of the World Medical Association

What Physicians Can Do

There are several things that American physicians can do to forward the work of these several teammates for health on the world scene Every physician who is a member of the American Medical Association is entitled to individual membership in the United States committee of the World Medical Association Support through such memberships enables the World Medical Association to carry on its important activities With membership comes a subscription to the *World Journal of Medicine*, which gives a view of the world scene in medicine In support of WHO, the physician should familiarize himself with its values to the United States both as an arm of the foreign policy of our government and as a contributor to our domestic health He can assist in developing understanding within his own community concerning the importance of the development of public health services in underdeveloped areas of the world as a barrier to the spread of communism Information concerning these activities can be obtained from the National Citizens Committee for the World Health Organization, 1790 Broadway, New York

Finally, health is a subject in which all people of the world, irrespective of color, race, and political philosophy, have a common interest In fact, international cooperation in the field of health is proving to be a common ground for the development of cooperation and understanding that could well extend to more difficult and more controversial areas This is a field in which the United States has the ability as well as the unique opportunity to assume world leadership It is important that physicians understand and participate in these efforts Such a participation helps protect the health of Americans at home and abroad, it furthers the progress of medicine and the medical profession throughout the world, and, probably most important of all, it is a potent force in our world-wide effort to build the conditions of peace

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CLINICAL NOTES

IATROGENIC HEATSTROKE

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Hyperpyrexia or heatstroke has been recognized for many years as a risk of workers exposed to high environmental heat loads, particularly when they fail to use available protective measures Although heatstroke has been studied in detail along epidemiological [1] as well as physiological lines,[2] it has not been considered much of a problem in ill patients during a period of sustained heat where there are no provisions for air conditioning When troops move suddenly into hot, dry deserts, warm, moist, jungles, or tropical conditions, particularly after the confined inactivity of a sea voyage heat exhaustion is the usual form of heat disability Heat exhaustion commonly is nothing more than unrecognized dehydration Intake of water promptly corrects it Hyperpyrexia from heat occurs when the sweat glands are worn out or overwhelmed acutely Both problems have been studied in the natural environment as well as under experimental conditions of the laboratory [3] In the classic study of Ferris and his colleagues in Cincinnati,[2] sustained elevation of night temperature was a more important causal factor than the height of temperature during the day Subsequent exhaustion of the heat-regulating mechanism eventuated in the sometimes abrupt sometimes gradual, cessation of sweating that gave rise to hyperpyrexia This excessive elevation of body temperature presumably developed very rapidly after sweating stopped, though naturally there are no observations on the time relationship Congestive heart failure a traditionally invoked antecedent, was not important. The main prerequisites of heatstroke were excessively high night temperature during a protracted heat spell in which the daytime temperature was also excessively high, a breakdown of the heat-regulating mechanism characterized by cessation of sweating, and subsequent hyperpyrexia Without prompt cooling, death usually came very quickly Acute but not chronic alcoholism constituted an added risk

The observation of several patients at the University Hospitals who had temperatures of 105-106 F (40 5-41 1 C) during a heat spell in 1955 illustrated some of the problems seen in industry or in movement of troops from a cool to a hot climate In this situation, with the patients under observation, some of the prodromes and some of the unusual inciting or precipitating causes may come under more detailed analysis and observation, even if only in retrospect The purpose of this report is to describe observations of a patient who developed hyperpyrexia after the cessation of sweating, aggravated or precipitated by the employment of atropine in preparation for a bronchoscopic examination No doubt drapes used on such patients in the operating room impeded cooling Restriction of fluids and the heat produced by struggling during the procedure probably represent added handicaps Additional cases of heatstroke have occurred under similar circumstances, though in no single case has it been possible to exclude other possible precipitating agents or causes In other cases, recognized early, patients were relieved by prompt sponging and fanning

Report of a Case

A 64-year-old night watchman was admitted to the medical service of the State University of Iowa Hospitals on July 12, 1955 During the preceding three months he had noticed progressive shortness of breath and pain in his legs both conditions appeared after he walked about three blocks Both were relieved by rest He had been taking 0 1 mg of digitoxin daily and was receiving 2 ml. of meralluride (Mercuhydrin) weekly from his family physician for congestive heart failure Various vasodilators had been ineffective in relieving the pain in the legs In 1947 the patient had received radiation for carcinoma of the right vocal cord. He had been observed periodically here in the otolaryngology clinic from 1947 to 1953 with no evidence found of recurrent carcinoma He also had been evaluated in the medical outpatient clinic, where hypertensive cardiovascular disease *with congestive failure* was *discovered* The patient's wife later informed the examiners that her husband was one-quarter Cherokee Indian " There were no other significant data except that one son with cirrhosis of the liver had bled from esophageal varices

Review of systems disclosed that the patient had been in other hospitals four times since November 1954 because of "pneumonia." During the six weeks prior to his admission here he had several attacks of unexplained chills and fever For several weeks he had raised much white sputum every morning

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without hemoptysis. He habitually smoked one package of cigarettes and drank 10 cans of beer daily. There were no gastrointestinal, genitourinary, or neurological complaints.

Physical examination showed a squat, cooperative, gray-haired man with a very protuberant abdomen. Blood pressure was 140/90 mm. Hg, pulse rate 80, and respirations 24. His voice had been hoarse since the radiation of the larynx. The skin was grayish-brown, and there was acne on the abdomen and back. Findings on examination of the head, eyes, ears, nose, and throat were not remarkable. An ill-defined mass 1 cm. in diameter was palpable in the right supraclavicular area. The chest was "barrel-shaped" and somewhat emphysematous. Expiratory wheezes and fine rales were heard over both lungs. The heart was slightly enlarged to the left. A grade 1 apical systolic murmur was heard. A small amount of ascites was present. A firm, elevated erythematous mass half a centimeter in diameter was discovered in the foreskin. The ankles had slight pitting edema.

Specific gravity of the urine was 1.011, neither albumin nor sugar was found, but several hyline casts were seen microscopically. The hemoglobin level was 10.5 gm. per 100 cc., and the white blood cell count was 10,900 per cubic millimeter, with 3 bands, 82 granulocytes, 1 eosinophil, 7 lymphocytes, and 7 monocytes. Findings of the Kolmer serologic test were reported "positive 1:1," while results of the Venereal Disease Research Laboratory test were "doubtful." Results were "doubtful" when both tests were repeated. The cerebrospinal fluid was negative. Because of the apparent increased pigmentation, the urine was examined for presence of arsenic, mercury, and lead, but these were not found. The result of the test for coproporphyrin was 2+ and that for uroporphyrin was negative. Frei and tuberculin skin tests were negative. Electrocardiographic findings were normal. Total vital capacity was 1.8 liters. No L. E. cells were found. Blood cultures failed to grow Brucella or other organisms. Findings of tests indicating status of the liver were sulfobromophthalein, 9% retention, albumin, 4.3 mg., and globulin, 3.4 mg. per 100 cc., thymol turbidity, 4.9 units per 100 cc., alkaline phosphatase, 3.4 Bodansky units per 100 cc., and total cholesterol, 207 mg., and esters, 170 mg. per 100 cc. Chest x-ray demonstrated left ventricular hypertrophy and an unsuspected density 4 cm. in diameter in the right lower lobe. This was thought to represent a bronchogenic carcinoma. X-ray films of sinuses revealed pansinusitis.

The patient received 800 mg. of sodium in his diet and 0.15 mg. of digitoxin daily, and on July 14 he was given 2 ml. of meralluride intramuscularly. By July 27 he had lost 13 lb. of edematous fluid. During this period he had several episodes of chills and mild fever for which no cause was found. The palpable node above the right clavicle was removed on July 27. Taking of fluids was restricted from midnight of July 26 until biopsy was completed late the following morning. The operation was well tolerated. Histological examination of the specimen revealed no carcinoma. On the day following the biopsy, the patient was examined by bronchoscopy. The administration of orally given fluids was again restricted after midnight. As premedication he received 50 mg. of pentobarbital sodium at 7:30 a. m. and 50 mg. of meperidine (Demerol) hydrochloride with 0.2 mg. of atropine at 8:30 a. m. At 8 a. m. 400 cc. of 5% glucose in water was given intravenously. Bronchoscopy was difficult, but visualization of the tracheobronchial tree was adequate. The only abnormality seen was evidence of chronic bronchitis. Cells obtained by bronchial washings were reported as "suspicious—several cells exhibiting aberrant activity." A culture grew beta-hemolytic streptococci and Diplococcus pneumoniae.

After returning to the ward at 1 p. m., the patient ate part of his lunch. An hour later he was unusually restless. When examined by the ward resident he was restless, confused, and tachypneic, with an inspiratory stridor. Blood pressure was 160/80 mm. Hg, pulse rate 100, and rectal temperature 101.8 F (38.8 C). The skin was hot and dry. An intravenous infusion of 5% glucose in water was started, and oxygen was given by nasal catheter. During the next hour, he lapsed into coma. The rectal temperature when rechecked was over 109 F (42.8 C). Because of the hyperpyrexia he was sponged with alcohol and ice while a tub of ice was prepared. Rectal temperature after several minutes of vigorous sponging was 108.2 F (42.3 C) with a different thermometer. The patient was put in a tub of ice water and massaged until the temperature dropped to 100 F (37.7 C), at which time the blood pressure was 90/40 mm. Hg. After he was removed from the tub the temperature continued to drop. It reached a low of 95.8 F (35.4 C). Lumbar puncture later yielded clear fluid with the following levels: protein, 54 mg. per 100 cc., glucose, 115 mg. per 100 cc., and chloride, 120.5 mEq. per liter. Serum electrolyte values were sodium, 138 mEq., potassium, 6.2 mEq., chloride, 110.4 mEq., and carbon dioxide–combining power, 18.9 mEq. per liter.

For the next few hours the patient had all the clinical signs of decerebrate rigidity. At 8:00 p. m. he began to react to painful stimuli. He vomited 200 cc. of coffee-ground material. Wangensteen suction produced dark-brown liquid during the following two hours. His hemoglobin level was now 10.5 gm. per 100 cc., and the white blood cell count was 10,900 per cubic millimeter. Granular casts and albumin were found in the urine. Whole blood (500 cc.) was given intravenously. At 10:00 p. m. the patient began to respond to questions and by the following day was fully oriented. Wangensteen suction was stopped, and he took food by mouth. On July 29, the day following the hyperpyrexia, value for blood urea nitrogen was 60 mg. per 100 cc., creatinine, 4 mg. per 100 cc., sodium, 131 mEq., potassium, 3.6 mEq., chloride, 102.6 mEq., and carbon dioxide–combining power, 20.7 mEq. per liter.

For two days the temperature was labile and occasional alcohol sponges were necessary. Within a week he seemed restored completely to his previous physical condition and had a consistently normal temperature. He complained only of frequent "fantastic" dreams. On Aug. 9, the level of blood urea nitrogen was 15 mg. and that of creatinine 2.1 mg. per 100 cc. Pulmonary function studies done Aug. 12 suggested that the patient might tolerate a lobectomy but probably not a pneumonectomy. A right lower lobectomy was performed on Aug. 16. The mass removed was an epidermoid bronchogenic carcinoma. During operation, a branch of the pulmonary artery was torn, and transfusion of 2,500 cc. of blood was required. The immediate postoperative condition was good.

During the next four days respiratory difficulty, temperatures up to 104 F (40 C), and mental confusion developed. Penicillin, streptomycin, and intravenously given fluids were administered. On Aug. 19 there was an episode of acute gastric dilatation. A Levin tube was introduced. Suction thereafter produced dark-red fluid. Serum electrolytes were normal on Aug. 18. On Aug. 20 a medical consultant found no evidence of congestive heart failure. Blood pressure was 130/70 mm. Hg, pulse rate 100, and temperature 100.8 F (38.2 C). Respirations were shallow and labored. Subcutaneous emphysema was present over the upper chest and there were twitching movements of the face and arm muscles. The patient was moved to an air-conditioned room, where he improved temporarily. Serum electrolyte values reported later the same day were sodium, 128 mEq., potassium, 5.1 mEq., chloride, 76 mEq., and carbon dioxide–combining power, 33.1 mEq. per liter. Chest x-ray film showed "almost complete expansion of the remaining right lung." There was no evidence of pneumonia. The surgical resident calculated that there were sodium and chloride deficits equivalent to 4 liters of isotonic sodium chloride solution.

At 9:50 p. m., Aug. 20, respirations ceased and the patient died. Postmortem examination findings were (1) mural thrombus of main artery and medial lobe of right lung, (2) congestion of right lung and slight bilateral pulmonary edema, (3) slight calcification of aortic valve, (4) myocardial hypertrophy, (5) chronic congestion of the liver, (6) splenomegaly, (7) mild cerebral edema, (8) moderately severe coronary atherosclerosis, (9) diffuse cortical hyperplasia of both adrenal glands, and (10) small areas of gastric submucosal hemorrhage. A culture of blood from the heart at autopsy yielded no growth.

Comment

The genesis of heatstroke is not understood with the precision that would tell us why, toward the end of a heat wave, it seizes on this patient or that rather than everybody in the hospital or nobody. The occurrence of heatstroke in a hospital suggests a need for artificial cooling, at least in certain portions of the hospital, but, since this will not soon become widely available, it behooves us to search out what may be disposing factors and antecedents of heatstroke A number of personal observations reveal that heatstroke has a more than chance tendency to affect (1) those who have undergone surgical operations, (2) those who have undergone procedures such as endoscopic examinations, and (3) those who may have had to go without food or drink over substantial periods of time because of intensive studies during hospitalization It is very difficult to document such instances The evidence, circumstantial at best, is not always convincing, such causes of heatstroke remain in the realm of probability

In our patient we think it likely that the use of atropine favored the cessation of sweating We are convinced that doing on successive days two procedures that required the patient's going without food or drink for many hours was a contributing cause Such procedures are often done on patients who are snugly wrapped in the gown and ceremonial drapes of the operating table, which form an effective windscreen and reduce such cooling as convection and evaporation might bring Finally, the tendency to shield such people from view with curtains before and after a procedure may present an added hazard We suggest close observation of patients subjected, during a very warm spell, to such procedures when they are living in quarters that do not provide effective cooling at night or are not air conditioned We have no evidence that procedures done in an air-conditioned operating room render persons more susceptible to heatstroke when they are removed into a hot environment To establish these ideas on firmer ground, additional observations must be made The mere fact that heatstroke occurs suggests that we are not taking adequate precautions, particularly under the circumstances set forth herein Old age, congestive heart failure, and alcoholism, though discounted,[2] may have been added factors here

Summary and Conclusions

A patient developed heatstroke soon after bronchoscopic examination It is our opinion that the various preparations for this procedure may have precipitated his trouble Certainly there were potentially harmful influences We urge that further observations dealing with this problem be made, so that proper prophylaxis may be instituted if such precursors should prove to be significant in the occurrence of heatstroke in patients in general hospitals

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DETERMINATION OF RADIOIODINE UPTAKE IN THYROIDS BY TWO METHODS

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There are several methods available for the determination of radioiodine (I^{131}) uptake by the thyroid gland Some methods involve a single detector, either a scintillation counter or a Geiger-Muller tube, or four detectors, either scintillation counters or Geiger-Muller tubes There are advantages and disadvantages in both methods Since both a single scintillation counter and a four-tube setup are in use at the New England Deaconess Hospital, it was decided to compare the uptake of I^{131} in the thyroid gland as determined by each method Radioiodine emits beta particles, having a maximum energy of 0 60 mev and a range in tissue of 2 to 3 mm , the I^{131} also emits gamma rays This isotope has a half-life of eight days Since the I^{131} normally concentrates in the thyroid gland in varying amounts, depending on the condition of the gland, the isotope is very useful in diagnostic tests

Procedure

The procedure as here employed is to administer the radioiodine orally, the prescribed dose being made up in a glass of water At the same time that the patient s dose is prepared, a standard containing an amount of I^{131} equal to the dose in the patient s drink is made up in a 125-ml Erlenmeyer flask Twenty-four hours and 48 hours after administration of the I^{131} the patient returns to the hospital for studies of the I^{131} uptake in the thyroid gland This uptake is determined by either the single scintillation counter or the four-Geiger-Muller-tube arrangement In the scintillation-counter setup there is a crystal of thallium-activated sodium iodide 1 in thick by 1 in in diameter The crystal has a shield consisting of an annular lead ring of approximately 0 38-in thickness mounted in a chrome-plated brass shell The crystal is the detecting element, which fluoresces when radiation impinges on it, the fluorescent light is converted into electrical impulses by the photomultiplier tube Finally, the electrical impulses are amplified and energize a scaling unit.

Prior to the determination of the count rate of I^{131}, a count rate of the background, i e , the radiation due to cosmic rays and any other radiation in the vicinity, is established Since the background radiation may not be eliminated, it is necessary to subtract its count rate from the count rates of I^{131}, all count rates are corrected in this manner Prior to the determination of

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From the Cancer Research Institute New England Deaconess Hospital.

the count rate of I^{131} in the patient's thyroid gland, the count rate of the previously prepared standard is determined. When the scintillation counter is used for determining the I^{131} uptake, a distance of 30 cm from the face of the crystal to the center of the standard is employed. The count rate of the standard when taken under these conditions is considered the 100% value.

After the establishment of this value, the patient is positioned in a chair so that the distance from the face of the scintillation crystal to the skin at the isthmus level of the thyroid is 30 cm. With the single-scintillation-counter method, the patient can be allowed little movement, and alignment of the patient becomes very important. The distance of 30 cm was selected for the scintillation-counter setup because minor errors in positioning and alignment or slight motion of the patient will not affect the percentage of uptake as greatly as when a shorter distance is used. The count rate of the I^{131} in the thyroid is established. This count rate divided by the count rate previously established for the standard multiplied by 100 gives the percentage of uptake in the thyroid.

The count rates of the standard and thyroid are then obtained by the four-tube setup.[1] The copper-cathode Geiger-Muller tubes are connected in parallel and register as one on the scaler. The Geiger-Muller tubes are arranged on the circumference of a circle having a radius of 45 cm, the tubes being located at 90, 180, 270, and 360 degrees. Concentric within this circle is one of smaller radius, 7.5 cm, which is termed "free circle"; the function of the "free circle" is to present an area in which the count rate varies less than 5% from the count rate obtained at the center of the circle. With such an arrangement the patient may move about or be inaccurately positioned within the limits of the "free circle" and the count rate will not change appreciably. With this method the patient sits in an adjustable chair that can be elevated until the level of the thyroid gland is in the same plane as the four tubes. When the patient is properly positioned, a count rate of the iodine in the thyroid is established. Prior to the reading of the uptake in a patient, the count rate of the previously prepared standard is established, so that the percentage uptake of I^{131} in the thyroid can be obtained.

Results and Statistical Analysis

Since both the single-scintillation-counter method and the four-tube-Geiger-Muller setup were available, many patients having tracer doses of I^{131} had the percentage of uptake of I^{131} in the thyroid gland established by both methods. This paper presents the data on 55 patients whose percentage of uptake has been determined by both methods. The table gives the percentages of uptake established at 24 and 48 hours by both the scintillation-counter technique and the four-tube setup; also presented are the differences in percentage of uptake between these two methods. A statistical analysis of the data by an adaptation of the "t" test[2] to insure validity and significance of the results shows that the differences exhibited between the 24-hour and the 48-hour uptake readings on the same subject performed within a 30-minute interval on the four-tube-Geiger-Muller setup and on the scintillation-tube arrangement are in very close agreement with each other, the differences exhibited being well within the limits of chance variation. From the data, it is possible to conclude that both methods give reasonable estimates of some true value, or that the scintillation arrangement approximates the "true" four-tube-Geiger-Muller value.

The determination of the percentages of uptake is performed in such a manner as to preclude bias due to different persons participating, due to the order in which the methods are used, or due to the radiation level being measured. The differences (table) between readings with the single-scintillation-counter arrangement and four-tube-Geiger-Muller-tube setup are approximately half positive and half negative, indicating that neither method reads consistently higher or lower than the other. The 24-hour readings for the four-tube-Geiger-Muller setup are higher a few more times than those for the scintillation-counter arrangement, but with the readings taken at 48 hours the reverse is true. With the exception of three readings in the 24-hour series, all readings were ±8% or lower, while at 48 hours all but two values were ±7.3% or lower. Three of these large differences could be explained on the basis of known factors, such as an uncooperative patient and bandages over the thyroid area, preventing

Percentage of Difference in Uptake of I^{131} by Two Methods

Case No	24 Hr Uptake, %: 4 Geiger Mueller Tubes	24 Hr Uptake, %: Scintillation Counter	Difference in Uptakes, %	48-Hr Uptake %: 4 Geiger Mueller Tubes	48-Hr Uptake %: Scintillation Counter	Difference in Uptakes %
1	87.0	90.0	−3.0	80.0	79.0	1.0
2	40.5	44.0	−3.5	42.0	47.0	−5.0
3	22.8	21.8	1.0	21.8	20.0	1.8
4	75.5	69.5	6.0	73.0	70.5	2.5
5	83.6	86.0	−2.4	30.0	33.0	−3.0
6	76.0	70.0	6.0	71.0	66.0	5.0
7	76.3	73.6	2.7	71.0	74.0	−3.0
8	64.6	66.6	−2.0			
9	42.0	41.0	1.0	39.0	44.0	−5.0
10	72.5	80.0	−7.5	72.0	70.0	2.0
11	58.2	42.5	15.7			
12	20.0	21.0	−1.0			
13	31.4	29.0	1.8			
14	76.0	61.0	15.0	66.5	68.0	−1.5
15	37.0	29.2	7.8	28.8	31.6	−2.8
16	30.2	30.0	0.2	27.3	29.0	−1.7
17	66.5	68.0	−1.5	58.5	64.5	−6.0
18	16.3	13.3	3.0			
19	67.0	63.0	4.0			
20	57.5	57.5	0.0			
21	54.5	57.5	−2.5	50.7	53.6	−2.9
22				96.0	84.0	12.0
23	69.0	70.0	−1.0	65.0	61.5	3.5
24	29.0	31.0	−2.0	24.2	27.0	−2.8
25	60.0	66.0	−6.0	51.0	51.0	0.0
26	30.0	33.5	−3.5	31.0	30.0	1.0
27	22.8	18.6	4.2	14.8	16.6	−1.8
28	31.0	31.0	0.0	29.6	30.0	−0.4
29	21.8	22.0	−0.2	20.0	21.0	−1.0
30	39.8	41.0	−1.2	33.6	33.0	0.6
31	28.8	28.3	0.5	23.5	23.6	−0.1
32	43.6	41.0	2.6	34.8	36.5	−1.7
33	57.0	58.9	−1.9	58.6	58.6	0.0
34				81.5	82.5	−1.0
35	44.6	42.4	2.2	42.2	42.4	−0.2
36	61.6	65.2	−5.2			
37	76.0	79.4	−3.4	75.4	75.5	−0.1
38	44.5	44.5	0.0	43.6	44.2	−0.6
39	42.0	38.1	3.9	40.4	35.2	5.2
40	57.5	64.0	−6.5	57.5	66.0	−8.5
41	32.6	29.6	3.0	32.4	37.6	−5.2
42	83.0	72.5	10.5			
43	61.0	64.8	−3.8			
44	23.3	24.0	−0.7	24.1	21.8	2.3
45	86.0	79.5	6.5	80.0	80.0	0.0
46	34.6	37.2	−2.6			
47	90.5	82.5	8.0			
48	14.7	12.5	2.2	7.0	9.0	−2.0
49	42.0	41.0	1.0	43.7	38.0	5.7
50	42.0	40.0	2.0	43.3	36.0	7.3
51	36.6	36.6	0.0	37.4	39.0	−1.6
52	100.0	100.0	0.0	97.5	104.0*	−6.5
53	43.7	38.0	5.7	46.7	43.2	3.5
54	44.4	48.6	−4.2	54.0	47.5	6.5
55	36.6	34.4	2.2			

* This value is possibly due to movement of patient.

proper distance measurement These extreme differences were not eliminated in determining whether the two series were in agreement If they had been, an even stronger agreement between the two methods would have resulted

As has previously been mentioned, each counting method has certain advantages and disadvantages Patient positioning and movement have already been discussed The sensitivity of each method must be evaluated The scintillation counter is approximately five times as sensitive as the Geiger-Muller-tube arrangement, the diagnostic dose of I^{131} (50 μc) may be considerably reduced if the scintillation counter is employed The low sensitivity of the four-Geiger-Muller-tube setup has an advantage when one is determining the percentage of uptake in patients who have received therapeutic doses (5,000 μc, or 5 mc) When one attempts to determine the uptake in those patients who have received a therapeutic dose, the scintillation method is inadequate, due to the large amount of coincidence and resolving losses Very ill patients may not be able to step into the adjustable dental chair of the four-Geiger-Muller-tube setup, whereas they may easily sit before the scintillation counter, the latter may be mounted on a cart and can be taken to the room of the nonambulatory patient

Radioiodine in Urine

In the study of some patients who have been administered doses of I^{131}, it is helpful to determine the I^{131} in the urine With the four-Geiger-Muller-tube arrangement the radioactivity of the total collection may be measured because of the "free circle" region, where the count rate will not change appreciably with varying volumes of urine The low sensitivity of the setup also makes it possible to determine the I^{131} in the total collection of urine of patients who have received therapeutic doses With the single-scintillation-counter setup, it is necessary to take an aliquot of urine because the detecting crystal may not "see" the total volume of urine, in patients receiving I^{131} therapy an aliquot of the total urine collection would be taken for measurement because of the high sensitivity of the scintillation counter and the attendant coincidence and resolving losses

Addendum

Since these data were compiled, our scintillation counter has been modified by the manufacturer Following this modification, we now find that correction factors ranging from 1.0 to 1.3 must be applied to the scintillation counter readings in order to have a comparison of the uptakes

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This investigation was supported by a contract with the Atomic Energy Commission

All radioiodine employed in this investigation was obtained from the Oak Ridge National Laboratories

Mr Russell F Cowing gave advice and suggestions in this study and Miss Dorothy Blanchard gave technical assistance

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ANAPHYLAXIS TO HEPARIN SODIUM

REPORT OF A CASE, WITH IMMUNOLOGIC STUDIES

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Although minor manifestations of sensitivity to heparin sodium have been encountered in the early clinical usage of heparin therapy, reports of heparin anaphylaxis did not appear until 1946 The present report deals with another instance of anaphylaxis to heparin in a patient with allergies to multiple inhalants It is the eighth such case in the available literature and the fourth to be supported by skin and passive transfer tests It is presented in order to alert the profession to the possibility of such a catastrophic event when heparin is employed.

A 71-year-old man was admitted to the hospital on May 5 1955, with a history of substernal chest pain of 10 days duration The pain was oppressive in nature and radiated down both arms Review of his history revealed the existence of long-standing seasonal rhinitis and asthma, for which he had received desensitization therapy at different periods Physical examination disclosed a well-developed apprehensive man with a pulse rate of 100 and a normal blood pressure Examination of the heart was essentially normal, and the remainder of the examination was not remarkable The sedimentation rates were elevated early in the course of his illness, and the electrocardiograms showed an evolving pattern of an anterior myocardial infarction

Table 1 —*Skin and Passive Transfer Tests on Patient with Anaphylactic Reaction to Heparin*

	Antigen Dilution	Skin		Passive Transfer		Passive Transfer	
		Scratch	Intradermal	6/2/55	Control	7/6/55	Control
Heparin (beef)	1:1,000	0*	0	0	0	0	0
	1:100	0	++	0	0	+	0
	1:10	0	+++	++	0	+	0
	Undiluted	0	++++	++++	0	+++	0
Heparin (pork)	1:1,000	—	—	—	—	0	0
	1:100	—	—	—	—	0	0
	1:10	—	—	—	—	0	0
	Undiluted	—	—	—	—	0	0
Beef muscle	1:100	—	0	0	0	—	—
	1:10	—	0	0	0	—	—
	Undiluted	—	—	0	0	—	—
Beef serum	1:1,000	—	0	—	—	—	—
	1:100	—	0	—	—	0	0
	1:10	—	0	—	—	0	0
Pork muscle	1:1,000	—	0	—	—	—	—
	1:100	—	—	—	—	0	0
Penicillin	1:1,000	—	—	0	0	—	—
	1:100	—	—	0	0	—	—
	1:10	—	—	0	0	—	—
	Undiluted	—	—	0	0	—	—
Saline control		0	0	0	0	0	0

* 0 negative — not done + positive

Soon after admission the patient was given an intravenous injection of 100 mg of heparin. Two weeks later he developed thrombophlebitis and he was subsequently given another intravenous injection of 50 mg of heparin Within three minutes there resulted an anaphylactic reaction characterized by difficult breathing, shock, cyanosis extreme apprehension, and inaudible heart sounds He was given 50 mg of diphenhydramine (Benadryl) intravenously, 0.2 cc. of epinephrine solution 1:1,000 intravenously, 0.3 cc of epinephrine subcutaneously, and oxygen by mask He made a gradual recovery over a 30-minute period after this therapy Fortunately, his cardiac status was not affected adversely by the anaphylactic reaction His thrombophlebitis cleared in six days without further treatment, and the remainder of his convalescence was uneventful. After the reaction to heparin, skin tests, passive transfer tests, and other immunologic procedures were performed these are summarized in table 1 Scratch tests with heparin were negative Intradermal tests were

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From the Veterans Administration Research Hospital and the Allergy Research Laboratory Department of Medicine Northwestern University Medical School. Dr Bernstein is now in Cincinnati positive in a dilution of 1 to 100 Two subjects were given intradermal injections of 0 05 cc of the patient's serum Forty-eight hours later these sites were tested with dilutions of a heparin solution, these gave positive reactions Similar tests were negative for pork heparin, beef muscle, beef serum, and pork muscle In order to rule out the possibility that this reaction might have been due to the use of a syringe contaminated by a trace quantity of penicillin,[1] a passive transfer test was made with this drug, this was negative Precipitins to heparin were absent

Comment

Heparin is a complex polysaccharide belonging to the class of mucoitin polysulfuric esters Most commercial preparations are prepared from beef lung, but one commercial product is derived from hog liver Thus far it has been impossible to obtain a pure heparin substance with well-defined chemical and physiological properties However, toxic reactions such as chills, pyrexia, headache, and lumbar aches, which were common in the early use of heparin, are no longer encountered because of progressive refinements in the manufacturing process

De Takats[2] was the first to call attention to allergic manifestations to heparin, although none of these represented true anaphylaxis Jorpes,[3] in a review of the Swedish literature through 1946, stated that there were four reports of anaphylactic reactions to heparin Serious shock occurred in one of them when treatment was resumed after an initial dose one week previously It is not known whether these cases were substantiated by skin tests or other immunologic studies Grolnick,[4] Højensgaard,[5] and Chernoff[6] each reported a case with true anaphylactic reactions to heparin Complete skin tests and other immunologic data were procured in these cases in an attempt to show whether this sensitivity was native to the mucopolysaccharide component or whether a species-specific factor was responsible Hauch[7] collected six cases with allergic symptoms to heparin He concluded that these reactions were on the basis of species-specific sensitivity because some of his subjects reacted to beef heparin and others to pork heparin

Plancherel[8] conducted the most complete investigation of heparin sensitivity In a study of a long-acting heparin preparation, he encountered six instances of allergic phenomena ranging from simple pruritus to periarteritis nodosa All patients exhibited either positive results on intracutaneous tests or a fall in platelet count 30 minutes after a subcutaneous injection of heparin The latter test was found to be just as sensitive as the skin test in cases of heparin sensitivity By means of patch, scratch, and conjunctival tests to both beef and sheep heparin, he also studied 16 patients who had been on heparin therapy without allergic manifestations The results of these tests were negative In another series of 10 "nonsensitive" patients tested intradermally with beef heparin, there was one positive reaction When this case was reevaluated, it was noted that this patient complained of a marked local reaction, with pruritus at the site of the initial heparin injection Plancherel[8] concluded that the intracutaneous or the platelet fall tests were significant in the substantiation of heparin allergy He also attempted to differentiate between sensitivity to the heparin compound itself or to animal protein contaminants In a single patient, he demonstrated an isolated sensitivity to a "fraction V" heparin, one of six heparin fractions supplied by Hoffmann-LaRoche These fractions were bioassayed by varying response on the blood clotting mechanisms and on different numbers of sulfur groups No mention was made of protein composition of these fractions, nor were efforts made

TABLE 2.—*Summary of Reports on Heparin Sensitivity*

Author	Year	Cases No	Anaphylaxis	Other Allergic Manifestations	No with Allergy History	Primary Diagnosis	No with Previous Exposure to Heparin	Skin Tests to Beef Heparin	Skin Tests to Pork Heparin	P-K* Antibodies: Beef Heparin	P-K* Antibodies: Pork Heparin	P-K* Antibodies: Beef	P-K* Antibodies: Pork	P-K* Antibodies: Penicillin	Precipitins	Fall in Platelets
De Takats[2]	1941	8	—	Flushing of face dyspnea choking, constriction of chest faintness	—	Varied	2	—†	—	—	—	—	—	—	—	—
Jorpes[3]	1946	4	4		—	Varied	1	—	—	—	—	—	—	—	—	—
Grolnick[4]	1947	1	1		0	Subacute bacterial endocarditis	1	+	—	+	—	+	—	0	0	—
Højensgaard[5]	1949	1	1		0	Pulmonary embolus	0	+	—	0	—	—	—	—	—	—
Chernoff[6]	1950	1	1	Urticaria	0	Coronary thrombosis	0	+	—	+	+	+	+	—	—	—
Hauch[7]	1952	6	0	Itching of conjunctiva and palate rhinitis bronchial asthma	3	Varied	—	2 cases +	4 cases +	0	—	—	—	—	0	—
Plancherel[8]	1952	6	0	Urticaria eczema angioneurotic edema periarteritis nodosa, eosinophilic infiltration of heart muscle	—	Varied	3	+	—	—	—	—	—	—	—	+
Vodopivec Deutsche med Wchnschr 79 1423 (Sept 17) 1954	1954	5	0	Urticaria asthma fever eosinophilia	—	Varied	—	—	—	+	—	—	—	—	—	—
Present case	1955	1	1		1	Coronary thrombosis	1	+	—	+	0	0	0	0	0	—

* Prausnitz-Kustner (passive transfer) †— not recorded or not done + positive 0 negative

to exclude the possibility of species antigen in the testing Complete data of the previous literature are summarized in table 2

Skin and passive transfer studies in the case reported herein were positive for the beef heparin preparation used in this instance, while they were negative for pork heparin Simultaneous testing with pork beef and beef serum antigens produced negative reactions to these substances If it were not for a negative reaction to pork heparin, this would seem to be unequivocal evidence that, at least in this instance of heparin sensitivity, species-specific factors were not operative In view of Plancherel's[8] previous demonstration of sensitivity to a specific fraction of heparin, the evidence in this case is in favor of sensitivity to a specific fraction of this brand of heparin that was not present in the pork heparin tested Unfortunately, specific fractions of both brands of heparin were not available for further investigation of this problem

This report is also illustrative of several additional facts worthy of note Prompt and radical treatment, including epinephrine, may have been lifesaving It was felt that the use of epinephrine was imperative despite the accepted contraindication of such medication in the course of a myocardial infarct. This patient had a clear-cut history of exogenous allergies In retrospect it might have been wiser to make a skin test with heparin prior to the intravenous use of heparin Both De Takats[2] and Jorpes[3] have advised the use of a smaller initial dose (10-25 mg) in order to avoid serious reactions Return to these early recommendations seems justified, especially when an allergic history is obtained

Summary

A case of anaphylaxis to heparin was studied by means of direct skin and passive transfer tests, these were positive Further studies indicated evidence of true sensitivity to heparin polysaccharide substance rather than animal protein contaminants It is suggested that caution be exercised in the employment of heparin therapy in allergic patients

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This paper has been reviewed in the Veterans Administration and is published with the approval of the Chief Medical Director The opinion expressed by the author is the result of his own study and does not necessarily reflect the opinion or policy of the Veterans Administration

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CORTICOTROPIN (ACTH) GEL IN TREATMENT OF IRRADIATION ENTEROCOLITIS

REPORT OF TWO CASES

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One of the undesirable but frequently inevitable complications of radiotherapy of the lower vertebrae or abdomen for neoplastic disease is the development of enterocolitis The intensity of the latter can vary from mild diarrhea of short duration that is readily controlled by simple medicaments such as camphorated opium tincture (paregoric) to severe diarrhea that does not respond to all the medicaments usually employed to check the inflammation and hyperperistalsis associated with enterocolitis In a person already debilitated because of carcinoma, the maintenance of fluid and electrolyte balance is essential Accordingly, any measure that might be taken to prevent or arrest diarrhea and its devastating effect on fluid and electrolyte balance is certainly to be desired The following two case reports indicate the effectiveness of corticotropin (ACTH) gel in the treatment of severe diarrhea that developed after radiotherapy for carcinoma that was metastatic from the rectosigmoid to the sacrum

Case 1 —A 52-year-old female was admitted to the New England Deaconess Hospital on Jan 18, 1955 because of pain in the lower back of three months duration In 1950 she had had an abdominoperineal resection for adenocarcinoma of the rectum with hysterectomy and bilateral salpingo-oophorectomy because of extension into these organs Her course subsequent to the operation was uneventful until three months before her present admission when she developed some pain in the lower back This gradually increased and became associated with some urinary incontinence frequency and nocturia. She had begun to have anorexia and had noticed that her right leg had become slightly swollen On physical examination her temperature was 98 F (36 4 C), blood pressure 190/100 mm Hg pulse 84 and weight 126 5 lb (57 4 kg) Her appearance was that of a white middle aged female with a considerable loss of subcutaneous fat which was compatible with the presence of a chronic disease Her heart and lungs were normal The liver edge was palpable just below the costal margin A colostomy which seemed to be functioning normally was present in the left lower quadrant of the abdomen The uterus and adnexa were absent On vaginal examination there was definite tenderness of the sacrum and coccyx with firm hard tissue fixed to these vertebrae The urinary bladder was slightly distended Chest x-ray examination revealed the lung fields to be clear Examination of the spine revealed partial destruction of the sacrum more marked on the left side The other vertebrae appeared to be normal The laboratory data were as follows hemoglobin level 6 7 gm per 100 cc erythrocytes 2 300 000 and leukocytes 8 900 per cubic millimeter with a normal differential count and nonprotein nitrogen level 115 mg per 100 cc. Urinalysis showed specific gravity 1 008 alkaline reaction slight trace of albumin no sugar no acetone and a few erythrocytes and many leukocytes per high power field Pseudomonas aeruginosa and hemolytic streptococci were cultured from the urine

Radiotherapy was begun on the day after admission and was continued through Feb 1 1955 The patient was given eight treatments through a 15 by 15 cm port centered over the sacrum The total air dose was 2,250 r, and the total dose calculated at the center of the tumor was 1 530 r She was given three whole blood transfusions of 500 cc Although she

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From New England Deaconess Hospital

had some anorexia at the time of admission, there was no vomiting until the ninth hospital day At approximately this same time she began to have increasing frequency of liquid bowel movements Because of the urinary tract infection, therapy with 1 cc of Combiotic (a combination of penicillin and dihydrostreptomycin) given intramuscularly twice daily was begun on Feb 8 and was continued until Feb 14, when it was discontinued because the patient had developed generalized pruritus and a macular rash Diphenhydramine (Benadryl), 50 mg four times a day, and calamine lotion were used for this complication However, the rash and pruritus persisted The patient's appetite continued to be poor, she had occasional episodes of vomiting, and the frequency of movements from her colostomy increased despite intravenous administration of fluids and therapy with vitamins, aluminum hydroxide gel, camphorated opium tincture, and other medicaments By Feb 23 there was almost continuous liquid fecal drainage This constituted a considerable nursing problem On Feb 23, therapy with corticotropin gel, 60 units intramuscularly daily, was begun By Feb 26, the rash had almost entirely cleared, colostomy drainage was under control, and the patient's appetite had increased markedly Sixty units of corticotropin gel was given intramuscularly daily for nine days, dosage was then decreased to 40 units for three days, then 20 units for two days, and then 10 units daily During this period the patient had developed a voracious appetite and felt well except for some discomfort in her lower back Therapy with corticotropin was discontinued on March 19, after a total of 24 days Cystoscopic examination was performed on March 21, and trabeculation of the bladder was found The ureteral orifice on the right seemed higher than on the left, and the impression was gained of extrinsic spreading disease Sodium indigotindisulfonate given intravenously did not appear from the right ureter over a 30-minute period, and there was very little, if any, peristalsis on this side A fair amount of dye drained from the left ureter after 25 minutes The bladder capacity was found to be 300 cc The urologic consultant's impression was 'bilateral ureteral obstruction, more marked on the right side, presumably by metastatic carcinoma'

Corticotropin gel was administered again on March 27 because of the recurrence of anorexia and nausea Sixty units intramuscularly daily was given, with a favorable response The dose was gradually decreased until April 18, when use of the drug was stopped because of the development of generalized edema The patient's weight, which had been 126 5 lb at the time of admission and which had dropped to 118 lb (53 5 kg) during her period of vomiting, had gradually increased to 155 lb (70 3 kg) during the period when her appetite was excessive, and subsequently there was a rapid weight gain to 163 lb (74 kg) The nonprotein nitrogen level, which had dropped from 115 to 58 mg per 100 cc on April 4, had gradually increased to 145 mg by April 22 The patient became comatose and died on April 29, 1955

At postmortem examination, she was found to have a local recurrence of carcinoma overlying the sacrum and invading it Both ureters were also involved by tumor, with complete obstruction of the right of long standing, with associated atrophy of the right kidney The left ureter was almost completely obstructed, and there was a marked degree of hydronephrosis on the left The right iliac vein was partially obstructed by tumor There was no evidence of tumor elsewhere The intestine was reported to show no abnormalities microscopically Nodular hyperplasia of both adrenal glands was present, the right weighing 10 2 gm and the left 12 3 gm The pituitary was of normal contour and weighed 1 05 gm

The interesting feature of this case was the marked improvement in appetite, feeling of well-being, and the cessation of diarrhea when corticotropin gel was employed Although the patient did have azotemia throughout her hospital stay, she had no diarrhea until after radiotherapy The time interval between the beginning of radiotherapy and the onset of diarrhea also suggested that the irradiation was the causative factor The diarrhea stopped promptly when corticotropin was given This impression was corroborated by the case that follows

Case 2 —This patient was readmitted to the New England Deaconess Hospital on Feb 20, 1955 In March, 1952, he had been found to have an adenocarcinoma of the rectosigmoid At that time, an anterior resection with a transverse colostomy was performed Microscopically, the lesion was found to be 7 cm proximal to the distal line of resection, and there were two negative lymph nodes Second admission was on July 14, 1952, when the colostomy was excised and an end-to-end anastomosis performed Third admission was on March 12, 1954, because of evidence of recurrence of carcinoma at the site of anastomosis An abdominoperineal resection was performed The surgeon believed that he had not been able to remove all the diseased tissue adherent to the sacrum, and the pathological examination confirmed this impression Fourth admission was on Dec 30, 1954, because of acute urinary retention A transurethral resection for benign prostatic hypertrophy was performed on Jan 6, 1955, and the patient was discharged on Jan 16, 1955 Prior to and during this admission he had, in addition to the urinary retention, considerable back pain, which was assumed to be caused by metastatic disease An intravenous urogram revealed normal function of both kidneys, but the bladder dome was described as being somewhat ragged and its base considerably elevated The irregularity of the dome was thought to be due to extrinsic disease, while the elevation of the base was thought due to prostatic enlargement X-ray examination of the pelvis and lumbosacral vertebrae failed to reveal any evidence of destructive changes

Radiotherapy was begun on Jan 4, 1955, and was continued during the next month for a total air dose of 7,670 r through a port measuring 10 by 16 cm , with rotation of the pelvis The calculated dose in the center of rotation was 2,900 r On Jan 23 the patient was unable to void and use of an indwelling catheter was necessary Reexamination by the urologist revealed the presence of a stricture of the meatus, and dilatation was done During the patient's course of radiotherapy and continuing to the time of readmission on Feb 20, 1955, he had resistant diarrhea from his colostomy that failed to respond to camphorated opium tincture, opium tincture, aluminum hydroxide gel, codeine, and other medicaments Associated with the diarrhea he had considerable anorexia and slight vomiting His weight was 160 lb (72 6 kg) on admission Therapy with corticotropin gel, 60 units intramuscularly daily, was begun, and within three days diarrhea was completely under control and the patient's appetite had increased considerably The dosage of corticotropin gel was gradually decreased to 20 units intramuscularly daily, and the patient was discharged on March 10, 1955, to continue receiving this at home He continued to be free of symptoms during the following month, and the dosage of corticotropin was gradually decreased to 10 units twice weekly and finally discontinued However, the patient became slightly depressed, and his appetite and food intake decreased On May 11, 1955, corticotropin gel was given again, and its use has been continued in a dosage of 40 units twice weekly At the present time the patient is free of any genitourinary, gastrointestinal, or back symptoms, has an excellent appetite, weighs 175 lb (79 4 kg), and is in good spirits

At the time of his most recent admission to the hospital, this patient's chief problem was that of diarrhea, which in the presence of a normal nonprotein nitrogen level was thought to be secondary to radiotherapy to his back This had failed to respond to the usual measures There was a prompt and very gratifying response to corticotropin gel, not only from the point of view of controlling diarrhea and increasing appetite but also from the aspect of improving the patient's outlook and bringing about a feeling of well-being

Comment

We doubt that the underlying malignancy was affected by corticotropin in either of these two cases However, the dramatic relief from nausea and diarrhea given by corticotropin gel made these patients much more comfortable, and indeed a mild euphoria developed that was most helpful Although detailed electrolyte-balance studies were not performed in either case, it is obvious that there was a negative balance during the patients periods of nausea and diarrhea In a patient already debilitated by malignant disease and its complications, these additional factors in themselves could easily accelerate the inevitable outcome In our own experience and in that of others,[1] corticotropin has been of value in the treatment of certain types of enteritis and colitis Corticotropin seems to be equally effective in controlling the acute gastrointestinal symptoms that can follow radiotherapy

Summary

In two cases of recurrent adenocarcinoma of the rectosigmoid colon with vertebral metastases, the patients developed nausea, vomiting, and diarrhea after radiotherapy The use of corticotropin (ACTH) gel provided prompt relief for these distressing complicating side-effects The associated mild euphoria that resulted was also a helpful feature in caring for these patients

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COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs that appear in this column have been authorized by the Council for publication and inclusion in New and Nonofficial Remedies They are based upon the evaluation of available scientific data and reports of investigations

H D Kautz, M D, *Secretary*

Antivenin (Crotalidae) Polyvalent —North and South American Antisnakebite Serum —An antitoxin obtained from the serum of horses that have been immunized with the venom of four crotaline snakes (C atrox, C adamanteus, C durissus terrificus, and B atrox) The antivenin, dried by vacuum dehydration from the frozen state retains its potency for at least five years and is readily soluble in water for injection It is standardized by its ability to neutralize the toxic action of a standard venom by concomitant intravenous injection into mice

Actions and Uses —Antivenin (crotalidae) polyvalent contains protective substances against the venom of certain crotaline snakes (pit vipers) as demonstrated by its ability to neutralize the toxic effects of supralethal doses of venom injected into mice Crotaline venoms against which it is theoretically protective in man include those of most of the common pit vipers of North and South America, such as the rattlesnake, moccasin copperhead, fer-de-lance, tropical rattler, cantil, and bushmaster Because of known variations in venom antigenicity among various species of the family crotalidae, it is not known whether the serum contains protective substances against the venoms of all pit vipers Since it would be almost impossible to obtain extensive clinical evidence with the antivenin in persons bitten by snakes, and since the serum is lifesaving in mice, it is a proper presumption that it will be beneficial in the treatment of human victims of crotaline snake bite The drug is of no value for the neutralization of venom following bites inflicted by noncrotaline snakes such as the American coral snake, the true vipers, including the puff adder, the cobras, and the mamba, or any of the venomous spiders or scorpions

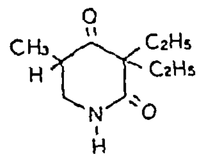
While antivenin (crotalidae) polyvalent is considered useful in the treatment of envenomization, its administration ordinarily should follow the use of well-established emergency first-aid procedures These include the immediate application of a tourniquet, not too tightly applied when an extremity is involved, and incision and suction at the site of the bite When a tourniquet is used, periodic release is necessary to avoid gangrene When such emergency measures have been delayed too long to make them useful, antivenin should be considered the initial method of therapy Chemical freezing, as with ethyl chloride, or prolonged exposure to cold, as by immersion in ice water, should be avoided because of the likelihood that this enhances the hypoxic condition caused by the hemorrhagic and proteolytic snake venoms In cases of potentially fatal bites by large snakes, experiments with animals indicate that life can always be saved at the cost of a limb by quick application of a tight tourniquet and subsequent amputation

Dosage —Antivenin (crotalidae) polyvalent is administered subcutaneously, intramuscularly, or intravenously in doses of 10 to 50 cc of reconstituted serum depending on severity of symptoms, lapse of time after bite, size of snake, and size of patient (the smaller the body of the victim in relation to the size of the snake, the larger the dose required) The freeze-dried serum should be reconstituted immediately prior to use Preliminary intradermal and conjunctival tests for sensitivity to horse serum should be carried out before administration of the antivenin if there is a history of allergy If desensitization is not required the estimated dose is administered by separate injections, not to exceed 10 cc at any one site if the victim is treated within two hours, a small quantity of the serum may be injected around the wound (except for bites on the digits), otherwise the entire dose should be administered higher on the bitten limb The initial dose is the most important one since viper venoms rapidly break down blood vessels and thus impede systemic absorption of the serum, therefore, the initial dose should be large enough to saturate the system and overwhelm the toxin If symptoms such as swelling or pain persist or recur, additional doses may be injected every 30 minutes to 2 hours, as necessary Although the serum frequently may be administered by laymen as an emergency procedure, it should not be given intravenously except by a physician and then only in grave cases All patients should be hospitalized if possible, and blood typing for transfusion should be performed as soon as possible because alteration of the blood pattern by the venom soon may make accurate cross-matching impossible

Preparations for use as stated for the foregoing drug are marketed under the following name Antivenin (Crotalidae) Polyvalent

Wyeth Laboratories, Inc cooperated by furnishing scientific data to aid in the evaluation of antivenin (crotalidae) polyvalent

Methyprylon —3, 3-Diethyl-5-methyl-2, 4-piperidinedione —The structural formula of methyprylon may be represented as follows



Actions and Uses —Methyprylon, a piperidine derivative, is chemically unrelated to the barbiturates but depresses the central nervous system in a similar manner The drug possesses a wide margin of safety and exerts pronounced hypnotic effects but has less tendency to produce respiratory depression than barbiturates The onset and duration of its action are comparable to those of such short-acting barbiturates as secobarbital sodium and pentobarbital sodium The possibility of addicting properties after long-term administration has not been fully assessed, but present clinical information indicates this to be less likely than with the barbituric acid derivatives

Methyprylon is useful as a hypnotic in patients with simple and nervous insomnia Although it is not superior to the barbiturates in this respect, it is well accepted by patients and appears to approximate the hypnotic potency of the usual doses of secobarbital sodium or pentobarbital sodium Thus, its soporific action begins shortly after administration and generally lasts several hours In most patients, this is sufficient to induce a restful night's sleep

The ultimate usefulness of methyprylon as a tranquilizing agent or as a daytime sedative is unsettled at the present time, however, available clinical evidence indicates that it is promising in this respect since it is the impression of both physicians and patients that the drug does exert a sedative action, especially in cases of anxiety and tension Its action in patients with cardiac neuroses, nervous manifestations of the menopause, or hypertension is not established, and no information is available concerning its use as a preoperative sedative

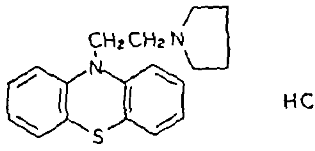
Side-effects so far reported from therapeutic doses of methyprylon have been infrequent and mild These include occasional instances of vertigo and nausea and vomiting, none of which appears to be of great significance In addition, hangover is less prominent than after the barbiturates In the body, methyprylon is dehydrogenated to a tetrahydropyridine compound that appears in the urine in greater concentration than the parent drug This analogue also appears in the bile Since an analogous tetrahydropyridine has been implicated as a causative agent in agranulocytosis, caution should be exercised in administering methyprylon To date, however, the drug has been administered to a large number of patients for prolonged periods without evidence of toxic effect on the kidney, liver, bone marrow, or the hematopoietic system

Dosage —Methyprylon is administered orally The usual hypnotic dose for adults is 0 2 to 0 4 gm at bedtime Doses of 50 to 100 mg three or four times daily have been employed for daytime sedation Dosage for children is reduced proportionally

Preparations for use as stated for the foregoing drug are marketed under the following name Noludar

Hoffmann-LaRoche Inc cooperated by furnishing scientific data to aid in the evaluation of methyprylon

Pyrathiazine Hydrochloride —10-[2-(1-Pyrrolidyl)-ethyl]phenothiazine hydrochloride —The structural formula of pyrathiazine hydrochloride may be represented as follows



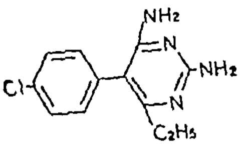
Actions and Uses —Pyrathiazine hydrochloride, a phenothiazine compound chemically related to promethazine hydrochloride, is an effective antihistaminic agent with actions, uses, and side-effects similar to those of other drugs of this pharmacological class A slight degree of nausea also may follow its administration The development of agranulocytosis has been reported after administration of doses greatly in excess of therapeutic levels for periods of longer than a month Blood cell counts should therefore be made at intervals in patients receiving this drug for long periods (See the general statement on histamine-antagonizing agents in New and Nonofficial Remedies)

Dosage —Pyrathiazine hydrochloride is administered orally The usual dose for adults is 25 to 50 mg three or four times daily, preferably after meals and at bedtime For children over 4 years of age, a dose of 12 5 to 25 mg three or four times daily as required may be employed

Preparations for use as stated for the foregoing drug are marketed under the following name Pyrrolazote

The Upjohn Company cooperated by furnishing scientific data to aid in the evaluation of pyrathiazine hydrochloride

Pyrimethamine —2,4-Diamino-5-*p*-chlorophenyl-6-ethylpyrimidine —The structural formula of pyrimethamine may be represented as follows



Actions and Uses —Pyrimethamine, a diaminopyrimidine chemically related to chloroguanide hydrochloride, is a potent folic acid antagonist used as an antimalarial agent Its antimalarial action is believed to be due to a differential requirement between host and parasite for the nucleic acid precursors involved in growth The drug is effective as a suppressive agent in malignant tertian (Plasmodium falciparum) malaria and benign tertian (P vivax) malaria Against overt infections, it is a slowly acting schizonticide It interrupts transmission of the disease by arresting sporogony in the mosquito Pyrimethamine is primarily useful, therefore, for the prevention of clinical attacks of both vivax and falciparum malaria and in preventing transmission by arresting sporogony There also is evidence to indicate that, when a suppressive regimen is continued for a sufficient number of weeks to extend through the time when relapses would be expected, eradication ("suppressive cure") of vivax infections may result The use of pyrimethamine as a suppressive agent in falciparum infections results in radical cure in most cases Because of its slow onset of action, pyrimethamine should not be used for the treatment of acute primary attacks For such attacks, a fast-acting schizonticide is indicated

Primary resistance to the drug does not develop during its clinical use as a suppressant in the recommended dosage, however, cross resistance to pyrimethamine may develop in plasmodial strains that are already resistant to chloroguanide The latter condition is usually the result of improper usage Plasmodial strains that are resistant to chloroguanide and cross resistant to pyrimethamine have appeared in Malaya and certain other areas of the world where malaria is endemic For this reason, the drug should be used with caution in areas where chloroguanide has been extensively or improperly used, and it should not be employed at all if the infection is known to be due to strains resistant to chloroguanide

Pyrimethamine has a wide margin of safety, and, in therapeutic doses, its toxicity is very low, however, since the drug is a folic acid antagonist, gross and prolonged overdosage may produce toxic effects associated with folic acid deficiency These include a megaloblastic anemia and, less commonly, leukopenia, both of which disappear rapidly when administration of the drug is discontinued

Dosage —Pyrimethamine is administered orally In contrast to quinine or other antimalarials, it is tasteless The usual dose for adults for suppressive prophylaxis is 25 mg each week This dosage should be continued indefinitely in areas where malaria is prevalent The dosage for children under 15 years of age is 12 5 mg weekly If the regimen for suppressive prophylaxis is extended throughout all periods of exposure to malaria and through the expected periods of early recrudescence, suppressive cure of vivax infections may be obtained The minimum time to achieve this result is usually 10 weeks If late-relapsing strains are involved, a much longer period may be required for suppressive cure If the characteristic time of relapse is known for a late-relapsing strain, the initial course of suppressive prophylaxis may be followed by another course of pyrimethamine during the period in which relapse is characteristically expected Although pyrimethamine is not intended for therapy of acute attacks, it may be administered concomitantly with a fast-acting schizonticide to initiate transmission control by arresting sporogony in the mosquito The dosage for this purpose is 25 mg daily for the first two days After remission of the acute attack, the usual suppressive prophylactic dose of 25 mg (12 5 mg for children) each week should be resumed

Preparations for use as stated for the foregoing drug are marketed under the following name Daraprim

Burroughs Wellcome & Company Inc. cooperated by furnishing scientific data to aid in the evaluation of pyrimethamine

Intramuscular Use of Dimenhydrinate for Postoperative Nausea and Vomiting

The Council has evaluated the use of dimenhydrinate administered intramuscularly for the prevention and control of postoperative and postanesthetic nausea and vomiting Because episodes of nausea or emesis after surgery are related to a great many causative and conditioning factors and represent wide ranges in type and severity, the Council found it difficult to arrive at a definite conclusion that would apply to all cases In a series of over 9,000 unselected cases under partially controlled conditions of routine hospital practice and with all types of anesthetic agents and a variety of operative procedures, dimenhydrinate reduced the incidence of postoperative nausea and vomiting by approximately 50% Conversely, a negative conclusion regarding its value has been reached in a smaller (85-patient), more accurately controlled series in which nitrous oxide and ether anesthesia were used It is therefore apparent that the usefulness of dimenhydrinate for this purpose is unsettled The majority of experts in this field seem to agree, however, that even if a slight reduction in postoperative nausea and vomiting can be proved statistically, the disadvantages of hypotension and longer postoperative sleeping time caused by administration of dimenhydrinate may conceivably outweigh its usefulness for this purpose

Only the intramuscular route has been employed for the prevention and control of postoperative nausea and vomiting The usual doses for adults vary Some clinicians inject 50 mg before surgery, 50 mg after surgery, and then 50 mg every 4 hours for four doses For children under 5 years of age, all dosages are reduced to 25 mg Other clinicians have employed a standard dose of 100 mg for adults, injected shortly before completion of surgery

The Council voted to amend the monograph on dimenhydrinate in New and Nonofficial Remedies accordingly to describe the intramuscular use of the drug for postoperative nausea and vomiting

G D Searle & Company cooperated by furnishing scientific data to aid in the evaluation of the intramuscular use of dimenhydrinate for postoperative nausea and vomiting

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PATHOGENESIS OF TUBERCULOSIS

GUEST EDITORIAL

J A Myers, M D

Nothing has deceived those seeking to treat and prevent tuberculosis more than its pathogenesis Early pathological observations established the prevalence of primary tuberculous complexes with pulmonary and regional lymph node components These were frequently seen in the bodies of persons who had no evidence of clinical tuberculosis in life and in whom none was found at autopsy Such apparently well controlled primary complexes were also seen in bodies with coexisting destructive and progressive tuberculous lesions Ghon[1] dissected 184 bodies of children who had reacted to tuberculin and in all but seven found the pulmonary and/or regional lymph node components of primary tuberculous complexes (five located extrathoracically) Since then the pulmonary component has been known as the Ghon tubercle

When periodic tuberculin testing of children was introduced, it was observed that, in most of those whose skin reaction had recently become positive, roentgenograms of the chests were clear but in a few (rarely more than 8%), at about the time allergy was first detectable by the tuberculin reaction, shadows interpreted as representing pulmonary infiltrations were seen They varied in size from those scarcely visible to those that involved large areas Prolonged observation showed that most of these lesions represented only the inflammatory stage of Ghon tubercles[2] After becoming well established, they were rarely seen to increase in size, but occasionally one would reveal evidence of a minute central excavated area, cause a small amount of hemoptysis, and for a brief time present tubercle bacilli in washings from the stomach The primary infiltrates were usually in evidence without much change in their shadows for a year or longer, after which they slowly resolved and the shadows completely disappeared or, at most, left small densities thought to represent deposits of calcium

The regional lymph node component sometimes resulted in enlarged hilar shadows, but more often these areas appeared normal This was difficult to understand, since pathologists had observed that the parenchymal primary focus is accompanied by involvement of regional lymph nodes This apparent discrepancy was clarified by McPhedran,[3] who was unable to detect lymph node enlargements on x-ray films unless they extended outward and encroached on the lung parenchyma This was also observed even after he had removed the lungs from the thorax before making x-ray film inspections Although the lymph node component of most primary complexes did not cast visible x-ray shadows early in the course of the disease, in some (rarely more than 25%) x-ray evidence of calcific deposits was seen in the hilar region a few years later

In the early years of these observations, the fresh shadow-casting lesions seen in the chests of children who had recently become tuberculin reactors were thought to be serious and treatment was recommended although the children were asymptomatic Treatment was not always accepted, and continued observation showed that, regardless of how much or how little treatment was administered, these lesions with almost uncanny uniformity ultimately resolved without their hosts having suffered significant illness[2b] The deceiving aspect of these observations was that 92 to 95% of those who had recently become positive reactors did not show shadow-casting lesions on x-ray Ghon[1] had demonstrated that lesions are nearly always to be found in tuberculin reactors, but the minuteness of the lesions often made it difficult to locate them at autopsy and impossible to locate them in most cases on x-ray film It is now known that tuberculin reactors possess tuberculous lesions and that our crude methods of examining the living body enable us to locate only those lesions that are gross and dense and are so placed as to cast visible shadows on x-ray film, but the demonstrable primary lesions are of no greater significance than the smaller ones Thus, we need no longer be deceived by the absence of shadow-casting lesions on roentgenograms of chests of tuberculin reactors

Nearly three decades ago, when it was assumed that practically all adolescents and young adults were infected with tubercle bacilli, testing showed most of them were uninfected[4] Periodic testing of these uninfected young adults revealed that among those who became infected, as manifested by conversion of the tuberculin reaction, about the same percentage had primary infiltrates of such size, consistency, and location as to cast visible x-ray shadows, these infiltrates also behaved exactly like those occurring in children[5] Continuous observation has confirmed these findings[6]

In all of their stages, lesions of primary tuberculous complexes are usually so benign that their hosts do not suspect their existence unless examinations are made, and then the vast majority are detected only by the tuberculin reaction Apparently, this almost uniform benignity of lesions of primary complexes is due to their beginnings in normal tissues, where the response is nonspecific and the defense mechanism is permitted to operate without interruption By the time the defense mechanism becomes handicapped by allergy to tuberculoprotein, foci of tubercle bacilli are usually reasonably well encased, and thus in most instances they result in practically no destruction

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From the Department of Internal Medicine and the School of Public Health University of Minnesota Minneapolis

The reinfection type of tuberculosis is about as different in its behavior from the primary type as though two distinct disease entities were involved This is due to the introduction of allergy or sensitivity, which seriously handicaps the natural defense mechanism It is this sensitivity that encumbers the body's defense against tubercle bacilli to such a degree that it can no longer be depended on with certainty to protect against future invasions of tubercle bacilli Because of sensitivity, tuberculoprotein becomes so poisonous to cells and tissues that new implantations of bacilli are met with a much more intense response of the defense elements than that to the initial invasion Thus in the vicinity of new implantations, liberation of tuberculoprotein results in death of cells with which it comes in contact Therefore, many of the defending white blood cells are lost, and the others are not able to destroy all tubercle bacilli, but even with this severe handicap, the defense mechanism often partially wins in surrounding the new invaders with fibrous tissue so they are held in check at least temporarily On the other hand, the defense mechanism fails often enough to account for all the illness and death caused by tuberculosis

In any tuberculosis control program it is important to differentiate between the primary and the reinfection types of disease If this is not done, undeserved credit is awarded certain preventive and therapeutic efforts Moreover a state of confusion is created The only certain way to determine whether a given lesion is of the primary or the reinfection type is to have had periodic tuberculin testing and to know when conversion of the tuberculin reaction occurred Tuberculous infiltrates in evidence by the shadows they cast about the time allergy can first be elicited by the tuberculin reaction are almost always parts of primary tuberculous complexes—Ghon tubercles Lesions that first appear in persons whose sensitivity has existed longer than three months are more likely to be due to reinfection, but some primary infiltrates do not acquire adequate consistency to cast x-ray shadows until after they are three months old Therefore, if one desires to truly differentiate between primary and reinfection types of pulmonary lesions, one must periodically test nonreactors to tuberculin every two or three months Rarely is it possible to differentiate between primary and reinfection types of infiltrates by x-ray films early in the course of their development since they cast identical shadows The belief that with primary infiltrates there is always evidence of hilar lymph node enlargement detectable by x-ray film must be abandoned

Erroneous deductions have been drawn from efforts to prevent tuberculosis by giving various agents because primary infiltrates were not identified and properly classified Experiments, consisting of artificially producing primary tuberculous complexes in the skin and regional lymph nodes by a variety of acid-fast organisms and comparing the immediately subsequent roentgenographic changes in the lungs of these subjects with those of persons allowed to become infected from current patients, have only led to confusion and deception A number of reports have appeared in the literature stating that clinical tuberculosis is developed four or five times more often among those who become infected from current patients than among those in whom primary complexes have been artificially established in the skin and regional lymph nodes In no such report yet analyzed has an attempt been made to differentiate between primary and reinfection clinical disease Practically all shadow-casting lesions that have appeared in those who became naturally infected have been regarded as clinically significant

Inasmuch as 5 to 8% of persons who become infected naturally may present shadow-casting primary infiltrates (Ghon tubercles), which may be in evidence for one or more years, such tubercles together with the nonvisible primary complexes present in all tuberculin reactors, should be classified with the primary lesions, large and small artificially produced in the skin and regional lymph nodes Those who have had lesions of primary complexes established artificially in the skin and regional lymph nodes could not be expected to have such complexes appear in the lungs in any appreciable number Therefore, the location of primary lesions and the classification of those appearing in the lungs as clinical lesions have apparently been largely responsible for the deduction that four or five times more naturally infected persons develop clinical lesions than those artificially infected The number of primary infiltrates (Ghon tubercles) that cast x-ray shadows in the lungs of those naturally infected is adequate to account for most of the difference

One group is in as good health as the other as far as primary tuberculosis is concerned, whether the bacilli were administered artificially or were acquired naturally Indeed all tuberculin reactors in each group have tuberculous lesions Therefore the often reported four or five times as much tuberculosis seen in those naturally infected becomes insignificant It is only the reinfection clinical type of tuberculosis that appears in one group that is comparable to that which evolves in the other that determines the value of the method intended to prevent tuberculosis Chronic pulmonary tuberculosis is usually the result of a slow evolutionary process It may start to evolve within a few months after the initial invasion with tubercle bacilli or at any subsequent time during the remainder of the patient s life including old age Tuberculosis is a lifetime disease Therefore in observing persons who have recently been naturally or artificially infected a period of 5 years is almost nothing and 10 years is very little if one desires to avoid erroneous deductions

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1 Ghon A Primary Lung Focus of Tuberculosis in Children, London England, J & A Churchill Ltd., 1916

2 (*a*) Myers J A Harrington F E Stewart C A., and Wulff M First Infection Type Tuberculosis Its Treatment and Prognosis Am Rev Tuberc 32 63-643 (Dec) 1935 (*b*) Myers J A First Infection Type of Tuberculosis *Its Preallergic and Postallergic Stages of Development* ibid. 34 317-339 (Sept.) 1936

3 McPhedran F M Diagnosis of Tracheobronchial Tuberculosis Am. J M Sc 173 245-258 (Feb) 1927

4 Lees, H D., and Myers J A Tuberculosis Infection Among Adults Am. Rev Tuberc. 21 532-540 (April) 1930

5 Myers J A. Diehl, H S Boynton R E., and Trach, B Development of Tuberculosis in Adult Life Arch. Int. Med. 59 1-30 (Jan.) 1937

6 Myers J A. Primary Tuberculosis Acquired in Adulthood Dis Chest 22 293-312 (Sept.) 1952.

There is good reason to believe that failure to differentiate between the primary and reinfection phases of the disease is responsible for the concept that most clinical tuberculosis develops in people within two years after the initial invasion of tubercle bacilli In persons in whom primary infiltrates have been identified, classified, and kept under observation, this concept has not been substantiated Chronic reinfection types of lesions appear from year to year, and those that become demonstrable more than two years after the invasion greatly outnumber those that evolve earlier Inasmuch as demonstrable primary tuberculous infiltrates nearly always resolve, regardless of how much or how little treatment is administered, no claim can be made for the efficacy of a therapeutic agent in any group of treated patients that includes a large number with only primary infiltrates There is no doubt that the enthusiasm would have vanished from reported results of several forms of treatment of pulmonary tuberculosis as well as preventive efforts in the past had those persons with benign nonclinical primary infiltrates (Ghon tubercles) been removed from the series This will be true of present and future reports except when heed is taken and patients with primary lesions are eliminated or are compared with or included with those having other primary lesions rather than with those having the clinical reinfection type

CYSTIC FIBROSIS

Cystic fibrosis is a hereditary disease seen in children in which many or all of the exocrine glands are affected [1] It is rare in Negroes and never seen in Mongolians but occurs in about one in 600 live births in the white population In most but not all infants with this disease, pancreatic deficiency is present from birth, as shown by a marked decrease or absence of amylase, lipase, and protease in the duodenal fluid This is due to a plugging of the pancreatic ducts by amorphous eosinophilic concretions assumed to be highly concentrated normal secretions As a result ingested food passes through the digestive tract largely undigested The patient is usually hungry but, despite an adequate food intake, is undernourished The stools are copious, greasy, and foul-smelling but not watery Dammed-back secretions appear as cystic distentions in the pancreatic ducts, and the parenchyma becomes atrophic and fibrotic

Scanty but excessively viscid mucus, such as that found in the pancreatic ducts, may also obstruct the bronchioles Pulmonary involvement usually becomes manifest between the ages of 6 months and 2 years but may be evident a few days after birth and occurs sooner or later in all patients with this disease, more often than not after an acute upper respiratory infection After the fever has subsided, an unproductive cough persists This is the most serious aspect of the disease and the one that accounts for most of the deaths An obstructive emphysema usually occurs and later a chronic bronchopneumonia, with clubbing of the fingers, cyanosis, respiratory acidosis, and cor pulmonale Many patients with this condition are given diagnoses of chronic intractable asthmatic bronchitis Di Sant' Agnese [2] says that the sweat glands of patients with cystic fibrosis are always affected in such a way that the patients lose an excessive amount of sodium and potassium chloride in their perspiration This renders them unduly susceptible to heat exhaustion in the warm weather In some patients the liver is affected and hepatic cirrhosis develops, in some the secretory rate of the parotid glands is increased with a further loss of electrolytes, and in some meconium ileus occurs This type of ileus may be the first manifestation of the disease and may require surgical intervention

The diagnosis is based on finding evidence of pancreatic insufficiency, obstructive emphysema, an increased concentration of electrolytes in the sweat, and the same disease in one or more of the patient's siblings The sweat test is the most reliable single test because it is often positive in the absence of signs of pancreatic or respiratory disorders or of other cases in the same family Richmond [3] calls attention to the value of a chymotrypsin assay in patients with partial pancreatic insufficiency With better understanding of this disease, the prognosis, once very poor, has been improving About 10% of these patients have intestinal obstruction at birth About half of these patients die and in the rest the obstruction is relieved by operation The pancreatic insufficiency can be controlled by giving a low-fat, high-protein diet, with simple sugars rather than starch supplying about half the calories At least 20% more calories than the calculated requirement should be given daily Large doses of vitamins A and D should also be supplied and pancreatin should be given with every meal [4] These measures prevent deaths due to malnutrition Deaths due to heat exhaustion can be prevented by increasing the intake of salt, especially in hot weather It is essential to replace the potassium as well as the sodium loss [5] Patients with liver involvement will also require vitamin B and liver extract This leaves one important hurdle in the form of the respiratory complications, and it is on these complications that the prognosis in any given patient ultimately rests If these are not treated most patients will die Broad-spectrum antibiotics, penicillin, and streptomycin given intramuscularly and by aerosol as long as there is roentgenographic evidence of pulmonary involvement will tide many of these children over into their teens, when the disease becomes less threatening Although the term cystic fibrosis is a misnomer, it should be retained until the pathogenesis of the disease as a whole is better understood

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ORGANIZATION SECTION

CONFERENCE ON MEDICAL CARE IN BITUMINOUS COAL MINE AREA

Methods of developing better liaison between the medical profession and the United Mine Workers Welfare and Retirement Fund, in order to continue the gains made in improving the quality of medical care for coal miners, was the major theme of the Fourth Conference on Medical Care in the Bituminous Coal Mine Area, held May 6 in Charleston, W Va The conference, sponsored by the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the American Medical Association, was attended by 90 representatives of state medical societies, the A M A, and the UMWA Welfare and Retirement Fund

Prior to the conference, there was a two-day field trip, which covered more than 400 miles in the Bluefield and Beckley coal mining areas of West Virginia and Virginia Traveling in police-escorted motor caravans, about 30 conference participants visited a dozen hospitals, clinics, medical group buildings, and coal camp physician's offices They drove through an exhibition mine, and they also toured part of an operating shaft mine 441 ft below the ground surface The field trip offered a firsthand, on-the-spot view of how coal miners live, work, and receive medical care

Pennsylvania Agreement

One of the conference highlights was a report on the so called Pennsylvania agreement between the Medical Society of the State of Pennsylvania and the Medical Service of the UMWA Welfare and Retirement Fund, which was outlined by Dr Edgar W Meiser of Lancaster, chairman of the state society's committee on medical economics A full text of the agreement offered as a guide to other state medical societies was published in the May 12 issue of THE JOURNAL, page 164

Touching on the same subject, Dr Warren F Draper of Washington, D C, executive medical officer of the UMWA Welfare and Retirement Fund, told the conference

> Much interest in the Pennsylvania agreement has been evinced by the medical societies of other states which are eager to reach a similar understanding on matters which are a source of irritation and discord at various points within their states They likewise are desirous of working out an agreement that is in the interest of the patient and fair and just to all concerned While there are certain basic principles that apply to similar situations everywhere there are wide variations in conditions of medical practice in the different states and communities I believe that these must be considered and that each state within the framework of generally accepted principles must work out the details of an agreement to coincide with the particular conditions it has to face

In addition to Dr Meiser, physicians who presented reports from their state society liaison committees were Carl H Fortune, Lexington, Ky, R B Wood, Knoxville, Tenn, James P Williams, Richlands, Va, and J C Huffman, Buckhannon, W Va

Basic points of the Pennsylvania agreement, as outlined by Dr Meiser, are as follows 1 All contemplated changes in operating policy of the fund shall be presented on a state level, with the reasons for the proposed changes If no agreement is reached on a state level, the problem will be referred to the A M A Committee on Medical Care for Industrial Workers 2. All participating hospitals shall establish full medical audit committees, to assure a high quality of medical care and to insure that physicians are judged by the medical profession and not by any third party in the field of medical care 3 The agreement recognizes not only the specialty groups but also the county medical society as a qualifying agency in determining the competency of a participating physician 4 All who apply as participating physicians shall be listed in a designated category with the mutual approval of the fund and the county medical society 5 Causes for removal of physicians from the participating list are defined 6 The agreement establishes a definite system of liaison, including the local, county, district, state, and national levels of organized medicine

Dr Fortune, who presented six specific questions regarding general policy, declared that "the physicians of Kentucky are anxious to know whether the UMWA Welfare and Retirement Fund contemplates changes in fundamental policy in the Virginia, West Virginia and Kentucky coal fields as a result of the opening of the Memorial Hospitals" Dr Wood, pointing out that people today want truly comprehensive medical care, urged the medical profession to give close attention to the difficult problems that exist with respect to quality, distribution, and cost

Dr Williams reported that "consultation service provided by the UMWA Welfare Fund has been a great benefit and an invigorating help to the hospitals in the Virginia area," and he recommended that the consultation service be extended to general practitioners in the area Dr Huffman told the conference that most of the component medical societies in West Virginia have established UMW advisory committees and are resolving their problems with the area medical administrators at the local level, and the administrators are using the local committees to help solve their problems with the profession

Delivering reports as area medical administrators for the UMWA Welfare and Retirement Fund were Drs F H Arestad, Johnstown Pa, Asa Barnes Louisville, Ky, Leslie A Falk, Pittsburgh Hubert T Marshall, Morgantown, W Va, and John D Winebrenner, Knoxville, Tenn

Speaking of the Pennsylvania agreement Dr Arestad urged that "we all give full support to the new agreement, accept it in good faith, apply it fully in the interest of good patient care, and help to make it a symbol of the highest type of cooperative relationship in the medical field" Dr Barnes reported improved medical facilities and better professional relations in the Kentucky coal mine area, adding that "we have all accepted the joint responsibility and are working

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COUNCIL ON MEDICAL SERVICE

SURVEY OF GROUP PRACTICE

PRELIMINARY REPORT

In 1954 the Council on Medical Service of the American Medical Association and the American Association of Medical Clinics embarked on a joint survey of group practice The purpose of this survey was to collect information that would be of value to physicians who desire to practice together in groups The questions asked in the survey, therefore, were designed to provide answers that would shed light on what problems are faced by physicians in forming groups, how these problems are being met, and what constitutes a successful group

Because most groups, regardless of the ultimate size that they attain, start with a small number of physicians, most of the groups included in the survey were fairly small, though some had been in existence for many years This preliminary report is based on personal visits to 48 groups The information obtained has been abstracted, and wherever possible the replies to questions have been arranged in order of frequency The first section of each discussion deals with the answers given to the questions This is followed by a brief critical comment on those answers

This is not intended in any sense as a guide or manual for group practice Rather it is a factual study of how a sample of group practice clinics operate and their past and present experience The survey will be completed this summer, with visits to some 50 additional groups, and may provide for the preparation of more specific comments or recommendations on organization and procedure

Reasons for Starting Group Practice

The first question of the survey asked why the particular group was started To this question 40 of the 48 groups gave replies that could be analyzed

The largest number, 16 in all, stated that the reason behind the organization of their group was that better medicine and service could be practiced by a group than by an individual This was expressed in almost identical language in each of the replies, e g, "It was felt that a group could provide better medicine for the patient and for the doctor The physicians could devote more time to their specialty " "The doctors thought they could practice better medicine in a group than separately "

The second largest group of replies were from those who stated that the practice of one or more men grew too large and that more assistance was needed, hence the group started Nine indicated that this was the primary reason for the formation of the group Here too the replies were strikingly similar "One doctor's practice had become too large for him to handle by himself" "The practice of the individual doctors had outgrown them and they thought that by combining and hiring additional doctors they could better take care of the patients They combined strictly as a matter of economy and a reduction of individual responsibility "

It was interesting to note that in the third largest group, totaling seven, a family of physicians working together had decided to engage in group practice "Two brothers, both surgeons were born and raised in a town " "Three brothers decided to practice together They were all general practitioners " "A father, in a period of many years, had built an exceptionally large practice and wanted his sons to come in with him "

Next on the list of reasons for starting a group were replies from six groups who indicated that the primary factor was the belief that the group method of practice was more convenient or more secure for the doctors involved. "A group was a more convenient method of operation between the doctors of a small town They would buy a building and work together " "The town needed a small hospital, therefore, these doctors designed, financed, and are now operating a hospital It connects with their clinic " "Six doctors were practicing in the same town and decided to join their efforts in group practice " "Doctors believed they would have better security in a group "

Two of the surveyed groups listed other reasons One said "The idea originated when the doctors were in the army " The other stated "Due to circumstances, a beautiful mansion was left vacant, which could be purchased at a reasonable price Because of this two doctors bought the building and remodeled it for their office Thus, they started a group "

Comment —From the standpoint of the quality of the practice of medicine, the reason given by the 16 in the largest group, namely, that better medicine could be practiced by a group than by an individual, seems to be the most praiseworthy One would expect that those groups organized for this reason would be likely to plan their futures more carefully than some of the others, though this conclusion is not subject to confirmation from the facts available It is a more idealistic approach than some of the other reasons given for starting a group, but the fact that so many reasons were supplied suggests that motivation is frequently multiple and that, perhaps, the original motivation may be modified in time so that the ultimate structure attained is less due to the original reasons for starting than to other factors

Mechanics of Starting Group Practice

The second question in the survey was aimed at elucidating the mechanics of starting a group "How are groups started?" Unfortunately, the replies are rather vague in most instances perhaps this illustrates the rather haphazard way in which many physicians seem to enter into group practice The only way of handling the answers to this question is to quote some of the replies "As practice increased doctors were hired to take care of it The founder decided that he would retain doctors with the group if they were permitted to buy into it and become partners A group was thus organized" "A physician brought in another doctor with him, then his two sons started practicing with him and the clinic was born" "A building was purchased and remodeled and after adding an additional doctor they began practicing as a group" "One of the surgeons got the doctors together at his house for dinner, and presented the possibility of a group practice" "Two friends were discharged from the army and they selected another man and the group was started" "A business man was hired to organize, build, and finance the building and get the group started properly"

Comment —The replies to this inquiry are not particularly revealing Perusal of all of the answers suggests that there were two principal methods of starting groups (1) the formation of a partnership with pooling of income and expenses by physicians already practicing in the locality and (2) the addition of assistants to a physician whose own practice had become too heavy to carry alone In both of these methods there is a hazard that the future growth and the development of the group are insufficiently studied at the onset There is little in the replies to indicate a well thought-out plan of future growth and development, though this may have taken place more often than it was expressed It is believed that, regardless of how a group is started, plans should be drawn at the outset for professional growth as well as for physical facilities that would be necessary in such growth

Choice of Location

All 48 clinics surveyed replied to the question, "How was the location decided?" Forty-two mentioned simply that the doctors were already practicing in the community—either those who formed the partnership or the original founder Four said that the location was determined because of the industry surrounding the area, because of the potential growth of the area, or because a relative owned a bank building or other suitable quarters Two gave miscellaneous reasons One said that there was an advertisement in the newspaper that stated that a group was wanted to practice in a certain city and that there was a large growth of population in the area The second answered the question as follows "The men were from the surrounding countryside The location of the hospital in the town decided the location Also the county was large and wealthy, only 200 miles from a large clinic and 60 miles from a large city"

Comment —The replies to this question clearly indicate that groups are formed not so much in response to particular need or study of a community as to the fact that doctors are already in the area and wish to stay In view of the fact that local acceptance of practicing physicians is based so largely on familiarity, it seems likely that this method of establishing groups will remain the predominant one There seem to be no objections to any method of determining a location for a group, though most of the methods given in the answers might or might not fulfill the needs for supplying medical care to communities requiring such service

Size of Groups When Formed

All but 2 of the 48 groups gave information on the question, "How many doctors started the group?" Twenty of them reported starting with 2 or 3 physicians, 16 with 4 or 5, 8 with 6 to 10, and 2 with over 10 Of the 20 groups that started with 2 or 3 physicians, 5 still consisted of 3 or 4 after from 1 to 28 years in existence, 10 reported from 5 to 8 physicians after being in existence from 3 to 50 years, and one stated it had a staff of 10 after 51 years Four of these groups consisted of 12 physicians after from 15 to 40 years of existence The largest of these consisted of 16 physicians

Of the 16 groups that started with 4 or 5 physicians, 2 still reported 4 or 5 physicians after 6 to 8 years, respectively, the others ranged from 6 to 23 physicians after from 1 to 49 years in existence, and 10 of them had 10 or more physicians Eight of the groups reported starting with 6 to 10 men, the smallest of these consisted of 7 after 38 years and the largest 28 after 36 years With the exception of the one group of 7, all included over 10 physicians after 3 to 36 years Finally, of the two groups starting with 10 or more, one had grown to 17 after 2 years and the other to 13 after 34 years

Comment —It is difficult to draw any general conclusions on the rate of growth from these data The number of physicians in a group does not seem to be dependent on the size of the original starting organization, although none of the smallest exceeded 16 men, even the one that had been in existence for 51 years Apparently, therefore, the rate of growth is dependent on factors other than starting size and proceeds, when it grows at all, at rates that are not necessarily dependent on the number of years in existence

Early Problems

Forty of the groups replied to the question concerning their early problems and how they were met, and several listed more than one problem For this reason, the answers total more than 40 The largest number, nine, stated that the principal problem with which they were faced was the professional composition of the group, including the difficulty in selecting physicians to round out the professional staff and too rapid turnover Replies such as this were recorded "The problem which arose initially was one of keeping doctors with the group It was hard to find physicians who would stay on a salary" "The problem was to balance the group and of obtaining qualified internists to do so" "The problem has been to get men to stay with the group The present average age is 30, which means that the doctors come for experience rather than permanency"

Fifteen groups reported that their principal early problem was in the financial field How to handle accounts receivable acquired prior to forming the partnership, division of income, and establishment of a bookkeeping system. Typical quotes are as follows "The most difficult problem was to decide how to distribute the profits They finally decided to share and share alike" "Primary problem was lack of capital Doctors borrowed, skipped their salaries, and practically starved Also, they had no follow-up in their collection tactics A good bookkeeping system and a bookkeeper are necessary If a group can afford it, a good business manager should be obtained" "Greatest problem was that of distribution of net earnings, though one physician had the greatest practice, they all decided to share alike" "The problem of how to properly handle their capital account when taking on junior partners and how to credit each senior and junior partner with his share of the capital assets was, and still is, the major problem" "It is difficult to get the doctors to contribute enough from their personal incomes to pay for the clinic facilities reserve fund, etc"

Six groups stated that their principal early problem was the adjustment of personality differences One stated that, even in a small group of six, personality differences can cause problems Five stated that the major problem was deciding who was boss This, in turn, is closely allied to personality difficulties as is well illustrated by one reply "The major problem was to decide who was to be 'boss After this was determined one of the doctors left the group" No early difficulties at all were admitted by five of the groups, perhaps because there were none, or perhaps because the memory of those that had existed had faded It might be added here that one of the men making the survey had this personal comment to offer, "It is my belief that 'Personal Differences is a result rather than a cause In almost every case where the group stated that they had, or were having, personality differences, I found sloppily written partnership agreements, no definite method of promoting a new man to partnership, unfair distribution of work or earnings, and little or no planning

Two groups named as their major difficulty early antagonism from the local physicians or the county medical society One stated that "two doctors moved into a town where the average age of the physicians was about 70, therefore, the other doctors looked down on the young squirts" The other mentioned specifically the antagonism of the county medical society and stated that the unfavorable feeling shown by individual practitioners toward the group has not diminished Finally, one group mentioned a problem connected with the local hospital The statement is not completely clear The group was originally located in a hospital They found that they had to furnish and manage the hospital which presented problems'

Comment —The answers to this question are illuminating They indicate that physicians who are contemplating forming a group should (1) evaluate and plan a partnership agreement or other professional structure that will make it possible to add and keep the desired physicians, (2) obtain advice from someone with financial experience on the financial problems likely to be encountered, such as division of accounts built up prior to the partnership, bookkeeping system, and the source and repayment of capital (the problem of division of income among groups is partly professional and can be based, to some extent, on experience and will be discussed elsewhere), (3) recognize the importance of personality differences and attempt to select physicians who can work well together, (4) establish at the outset an administrative system that will place in the chief professional administrative post the physician best qualified for the job, (5) take whatever measures possible at the beginning to establish as good relations as possible with the local physicians and the county medical society, and (6) anticipate, so far as is possible, the relationship that should exist between the group and the local hospital Most of the problems encountered can be avoided, or at least minimized, by recognizing them at the start and taking appropriate measures to solve them before they reach a serious stage

Office Facilities

All 48 groups gave information in reply to the question, "What were the starting office facilities?" The largest number, 17, stated that they financed and built their own clinic building Here are typical replies "The original building was designed and built to house two doctors However, before they moved in they formed a partnership of four, so immediately started expanding" "A beautiful new building was constructed, the building is held in an outside partnership in which each of the three partners are equal" "The founder of the group bought, and paid for, a new clinic, $90,000 was spent for the building and equipment He now rents the building and equipment to the group" "The doctors built a beautiful clinic building It is held by an outside corporation whose stockholders are the doctors in the group" "The men borrowed money and obtained a G I loan for the balance in order to build their building They are still housed in it." "The new building was constructed, which was financed by the individual men plus a loan secured from the bank"

Fourteen of the groups reported that they purchased and remodeled a building that was already constructed This was sometimes an apartment house, an office building, or an old home Rented space in an office building or house was reported by 11 of the groups Several stated that the space was inadequate, though some apparently had not found this to be the case One group stated, "The cost of the building we planned was too high so we moved into an office building The group still rents office space in a commercial building and we have regretted it ever since" Another answered, "The original building was a small office building, which was very inadequate"

In five instances the group reported that it started in, or in close association with, the physical facilities of a hospital "At the time the founder started the group, he also started a hospital The hospital and clinic were financed entirely by him The clinic occupies the first floor of the hospital building However they are two separate and distinct organizations" "The group originally practiced in a hospital, 8 years later they built their own clinic building next door." "The original building and the one in which the clinic is now located is a functioning hospital which was erected before the clinic was established. The clinic rents space from the hospital but owns its own equipment." Finally, one group reported the aid of a local industrialist. "A local industrialist was induced to build the building and the group rents from him. It is a two-story downtown construction, the entire second floor being used by the clinic."

Comment.—Apparently, several methods can be successful in providing office facilities, but in all of them it is desirable to plan for possibility of expansion. There are a few general principles that all groups should consider in providing housing. 1. Provision should be made for expansion. 2. A sound method of raising capital and amortizing the capital investment should be agreed upon. 3. If office space is rented, provision should be made that the physicians will not be squeezed by unreasonably increased rentals at an awkward time. 4. If capital is involved, provision should be made for retaining control of the building in the hands of the physicians who are using it. 5. If the clinic facilities are in, or are in intimate relation with, a hospital, all of the factors involved in such relationship should be explored. 6. If the clinic was built by a local capitalist, or a single founder, the group should be assured that it will not be put out on the street or placed in an impossible situation by present or future owners of the building.

There seems to be some trend for clinics having facilities as a part of a hospital to divorce themselves from this arrangement and build elsewhere. The reasons seem to be that they can handle their own affairs more independently and that if anyone has differences with the hospital these are not carried over to the clinic.

Current Problems

All but two of the groups replied to the question on the nature of their present problems, some giving multiple answers. These have been classified by the present size of the group. In the first category of groups of six or fewer physicians, 14 replied. Four stated that their principal difficulty was in holding good men, most added that doctors do not like to continue working on a salary without progressing to partnership. Three stated that their chief difficulty was either getting a business manager or having him accepted by the group, or by their nonmedical personnel. Two indicated that a shortage of specialists (naming otolaryngology as a specialty in which there is a shortage) was their most serious difficulty. Two indicated that conflicts between the founder or the dominant family in the group and the other physicians was the most serious current problem. Two stated that either the doctors think they work too hard or they take too much time out. Three did not list any current problems.

There were 13 in the groups having from 7 to 11 physicians. Seven of these mentioned difficulty in holding good men or in determining who is to control the group or the distaste of physicians brought on salary to remain in that capacity without progressing to partnership. Five groups mentioned such problems as difficulty with physicians' wives, over-or-under-charging patients, or inadequate hospital facilities. Three listed the problem of division of income or financial aspects as the most difficult problem. Two mentioned, specifically, educating the partners to the advantage of a business manager or getting adequate paramedical assistance. One admitted to no current problems.

In the organizations having 12 to 18 doctors there were 13 groups. Six of these stated that the principal problem was educating the physicians and their wives to the nature of clinic practice. Five listed collections, administration, or capital accounts as the principal problems, five listed inadequate space, and five, internal organization of the group. Three mentioned personality difficulties and another, employee insurance and pension plans. Four mentioned poor professional relationships with other men practicing in the community or no difficulties at all.

Finally, there were six groups with more than 18 physicians. Most of these listed several current problems. Three stated that their main difficulties have resulted from the growth of the group. "The clinic is growing larger and has become more wasteful and the physicians take a smaller percentage of what they make." "There is the problem of financing the expansion of the group." Three mentioned administrative difficulties. "Partnership is limited, primarily to one family which has strict control." "Problem of dividing responsibility among physicians instead of depending on the founder so much." Two listed finding the right physicians and two the division of income as the primary current problems. One stated that their greatest difficulty was with a hospital. "When a hospital is run along with a clinic, the hospital suffers many losses monetarily, and it takes the doctors' time to run it." One stated, "Physicians who want their own special secretary or nurse have also presented a problem."

Comment.—The similarity of current problems, regardless of the size of the group, is noteworthy. Considered in broad perspective, the most common current problem appears to be obtaining the right physicians in the group and getting them to work together, smoothly and efficiently. This is the basic attribute of those who replied "difficulty in getting the right men, difficulty in holding men, division of income, internal organization, and the like." The other categories of difficulty deal with physical facilities, that is, the space available and its location and the erection of a satisfactory administrative structure, both business-wise and professionally. In several instances, the release of the group from the too tight control of a founder or a single medical family seemed the most pressing problem. Again it seems that there is no single answer to these questions but that they are frequent and must be faced and solved if the group is to be a compatible organization over a long term.

Suggestions for Avoiding Group Problems

Only 18 gave specific suggestions on how problems of groups might be avoided. Four mentioned providing for expansion of building space. "When buying, renting, or building a clinic the future possibilities of enlarging should be carefully looked into" "Have architects experienced in clinic design, design your clinic" "Ownership of the building by some of the partners causes trouble" "Too rapid expansion of facilities may cause the cost to cut into the income too much" Three listed care in the selection of the doctors by age, and "wives," as important "Be careful in selecting doctors—age, ability, not only professionally, wives" "Do not add doctors too fast." "Hiring doctors on a temporary basis has caused difficulty" Three mentioned the business organization or business manager "Obtain a well trained business manager or none at all" "Have a local attorney help in initial organization and a tax attorney advise on the business organization" "Keep minutes of every meeting, this will help clear confusion of ideas as to policy When new men are taken on, a written contract should be signed" Two discussed the income of the physicians "Never determine the individuals income to the group" "Never give a man a percentage of his gross income as a salary" Three talked of accounts receivable and collections "Don't let accounts receivable get high, the higher the accounts receivable, the higher the operating costs" "Be careful of collections, bill every 30 days" "Do not undercharge" One group felt they made a mistake in charging only what other doctors in the community did "They raised their fees and found they were getting more business" Finally, three gave miscellaneous suggestions "Be careful in hiring personnel for they are the largest part of the overhead" "Be sure adequate insurance is carried for all risks" "Keep a reserve fund"

Comment—Most of these suggestions seem to be entirely sound as far as they go Judging from what the original problems of these groups were and what they are now, however, the suggestions do not appear to cover all that might be said on this subject

Methods of Compensation of Physicians

Because of the vital importance of division of income to the well-being of physicians in a group, most of the replies to this question are given in full Although it is difficult to classify accurately the methods used six major categories are presented with examples of replies received from groups in each category In addition, because of its interest to younger men joining a group practice, the method of progression of junior physicians in 17 of the groups is given in detail

Point System—Replies of four groups who used a point system for division of income are given below One group stated that all physicians, partners, and employees are judged for payment on a point system One hundred points may be allocated to one man depending on (1) seniority, (2) dollar income to the clinic, and (3) importance to the group Partners receive special consideration in points because of their responsibilities of ownership A point committee of three members reviews the points every three months

Another group stated that net income is divided on a point formula Each doctor receives a base pay of $600 plus $25 additional per month for each year he has been with the group (If the doctor has his boards, he starts with $700 with $25 added per month) The balance is determined by points The cases the doctor takes care of determine 50% of the points, and the dollar income on the books determines 50% of the points The points are added for all doctors and the percentage of the individual doctor is secured, which percentage is each doctor's portion of the undistributed balance of the net profit at the end of the year

In a third group, it was stated that all partners are equal and have the same monthly drawing account which is approximately one-half of the total earnings The balance is distributed quarterly as a division of profits under this plan, once per year there is an annual division The plan consists of equality, incentive (recognition being given to bookings), tenure (at the end of two years, doctors start earning tenure points at the rate of four points per year for five years), cost accounting for expenses, and a recognition of the dollar value per patient of the different specialties (this is also based on points 30 points for internists, pediatricians, and like specialists and 20 points for radiologists, surgeons, and surgical specialists) In the fourth group, division of income is based on a point system that is a combination of the production and the time the doctor has been with the group Both salaried physicians' and partners' incomes are determined by this method However, the partners receive a much larger percentage of the surplus

Division Based Mainly on Total Bookings—Replies of four groups whose method of division of income was based mainly on total bookings are given below

In one group, division of partnership percentage is determined by bookings, and advances are made monthly against annual distribution In a second group, each month the total bookings are secured, percentage of bookings of each doctor is found, and two-thirds of the net is distributed according to these percentages The remaining one-third of net is divided equally among all partners This is the way of compensating the general practitioners and internists for examining patients for the surgeon

In another group, the individual doctor's percentage of booking to all bookings is determined, and the net profit after expenses is found, 75% of this net profit is distributed monthly, based upon the individual percentages The other 25% is withheld until the end of the year, when it is distributed in equal shares to all partners In a fourth group, after the net income is determined, 40% of this is divided equally among all partners The remaining 60% is divided according to the amount of business each doctor has put on the group books

Set Percentage Distribution of Income (Not Equal)—The following replies are from groups in which partners have a set percentage distribution of income (not equal)

In one group, the partnership is a 60-40 proposition, one partner gets 60%, the other partner 40% of the net earnings Against this they have a drawing account In a second group, one of the partners receives 30% of all the gross surgical income and the other gets what remains after all clinical expenses are paid The latter partner is the medical director and receives a salary from the foundation that had financed the clinic for his services as executive director of the foundation In another group, the senior partner owns 57 5%, one partner 22 5%, and the third partner 20% If a new man should start, at the end of the five-year progression period, he would share equally with the senior partners The reason why the present partners are not equal is because of their ages and of their length of practice in the community In a fourth group, the founder owns five-eighths and three doctors each have one-eighth There is really no partnership agreement, each doctor is on a separate contract between himself and the founder

Salaries Decided by Executive Committee and Partners—Replies given below are from groups in which salaries are decided by an executive committee and partners In one group the executive committee made up of three members decides the division of net profit between the partners This is subject to appeal to the entire partnership, which consists of six partners In a second group the salaries are determined by the board of trustees They are determined by need (*i e, children, sickness, and family support*), and a physician's income has no relationship to relative position in the group, to his shares, or to seniority Raises across the board are given periodically, depending on the group income The ultimate goal is to pay all department heads the same salary, with the members of the department receiving salaries less than that as determined by need (Top salary is now $15,500 Estimated salary for department heads is $18,000)

In another group, salaries are set by the executive committee and are based on five factors (1) whether a man is a department head, (2) whether he is a diplomate of a specialty board, (3) years of practice, (4) the years he has been with the clinic, and (5) his general value to the clinic In a fourth group, the partners determine among themselves how much each partner is to receive Each one has a drawing account to use during the year At the end of the year, the excess is divided or kept in the organization

In the fifth group, a member's salary is determined by an annually elected salary committee made up of four members, which reviews the salaries each year The salary committee draws up a proposed schedule of salaries and gives a copy to each member If the physician does not like the salary designated for him, he may request a hearing with the committee, or with a combination of the executive and salary committees Salaries have nothing to do with the volume of business that each man does but necessarily reflect the volume of work done by the group as a whole A man's salary increases periodically until, at the age of 40 and with 10 years of service with the clinic, he reaches a maximum salary of $40,000

Equal Division Among All Senior Partners—Twenty-six of the groups, ranging in size from 3 to 24 physicians and varying from 1 to 51 years in existence, stated that all senior partners shared equally in the income It is difficult to draw conclusions from such statements, however, without knowing how many of the physicians in the group were senior partners It is possible, for example, that in the largest group of 24 there are only 4 or 5 senior partners and all the rest are junior partners or employed physicians Such information would materially affect the interpretation of this reply and perhaps can be obtained later

Division Among All Senior Partners, with One Exception—The reply from one group stated that a group of five men share equally in the partnership One woman, however, receives a lesser share In another group, the partners share equally, with the exception of the senior partner of the four He does approximately 75% of all the surgery done by the clinic, and because of this he is paid a small salary before the net of the group is divided equally In a third group, the division of income among full partners is equal, with the exception of one, who receives 5% less than the others It is based entirely upon the amount of money invested in the clinic In a fourth group, before any of the income is distributed, 20% of the gross is divided among the building partners according to percentage of ownership in the building This is in lieu of rent After the 20% gross is taken out, the operating expenses of the group are then deducted, and the remainder is divided equally among all partners, including the building partners

Junior Partner Percentage Progression—The method of progression of junior physicians in 17 of the groups is as follows 1 Physician remains a junior partner indefinitely 2 A partner is put on a progressive scale from one year to three The second year he receives about one-half of what the senior partners get, and, at the end of the third year, he receives full participation 3 The progression period varies, a board man is given a contract for 7 years, and a nonboard man for 10 years The first year a physician is employed, he is on probation and receives a straight base salary After that he begins to receive a percentage of the equal shares in the profits This percentage increases year by year until, when he becomes a partner, he receives a full share of the profits The base pay of obstetricians and surgeons increases from $6,000 to $10,000 over a four-year period Other physicians base pay remains at $6,000 4 A physician is a junior partner for five years, before he is brought into full senior partnership He receives a percentage of the total partner's wage plus the same percentage of the profits This percentage increases year by year at an increasing rate until, at the time he becomes a full senior partner, he gets a full and equal share of the wages and profits 5 On becoming a junior partner, after one year on salary, a physician receives 65% of the senior partner's share, the third year, 70%, fourth year, 80%, fifth year, 90%, sixth year, 95%, and, at the end of the sixth year, he becomes a senior partner and shares equally with all other senior partners 6 It takes a physician 11 years after joining the group to become a senior partner The first year he is on salary, at the end of which time he is put on as a junior partner and his salary is increased 5% per year The senior partners are on a 50-50 basis

7 During the one year of probation, the physician receives a salary of $900 per month, which remains his base even after becoming a partner At the end of his year of probation, on the vote of three-fourths of the membership, he becomes a one-fourth–share partner and receives one-fourth of a full bonus At this time his salary plus bonus amounts to about 50% of that of a full partner A physician must spend one year as a one-fourth–share owner, two years as a one-half–share owner, three years as a three-fourths–share owner, and then he may become a full partner Each one-fourth share costs $5,000, which is paid by applying 50% of each months bonus money to the debt 8 A physician works three years on salary and two years as a junior partner He becomes a senior partner after five years A new physician receives $10,000 the first year, after that it is increased $1,000 per year Junior partners have a drawing account plus an increasing percentage of the profits

9 A junior member invests in the organization and shares in the profits but has no vote After two years he gets three-fourths the vote of a senior member and gets the full vote in another year His vote is increased by one vote approximately each five years until he has a total of five votes as a maximum at the age of 60 His investment must be equal in amount to the investments of all the other men 10 A physician goes on salary for two years, after which time he becomes a junior partner A junior partner starts at one-half of the senior partners percentage and progresses to the sixth year, at which time, if he is a board man, he becomes a senior partner If he is not a board man, he does not become a senior partner until the end of the eighth year of junior partnership 11 The new physician serves one year of probation During the first year of partnership, men with no special training receive 60% of the salary received by the full partner This is increased to 70% during the second year, 75% during the third, 80% during the fourth year, and the salary is equal to all other partners from then on A board-certified radiologist receives 85% of a full partners income during his first year and from then on shares equally Any other board-certified or board-eligible partner receives 70% during his first year, 80% during his second year and then shares equally

12 When the partners feel that a mans contribution to the income of the group is sufficient, he may buy half a share of the partnership and receive half the salary of a full partner This half share though it varies at this time costs $28,800 When a man is a half-partner, he owns two shares in the clinic, and after he has paid for them, if it is felt that his worth to the partnership has increased, he may invest more and become a three-share or a four-share owner and thus become a full partner A man is not allowed to invest any more than he is worth to the partnership 13 Physicians have one year on salary before becoming junior partners and after three years of junior partnership, they have full participation Physicians are employed at $1,000 per month and receive that amount for the one-year period on salary 14 The new doctor is put on a salary for one year, at $1,000 a month At the end of the year he becomes a junior partner He is kept on the junior partner status for a period of two years, at which time he becomes a full partner and shares equally with the other partners

15 This group has the unusual plan of requiring a doctor to be 10 years on salary before becoming a partner During these 10 years his salary increases $1,200 per year starting at $10,000 When he becomes a partner he does not have to buy into the capital assets of the group The capital assets are held as a partnership asset Partners share equally 16 There is a five-year schedule for any new man He is put on salary for the first year, after which he is a junior partner for four years, and then becomes a partner and shares equally 17 After being on salary for two years, the doctor then becomes a junior partner for five years with a percentage increase from year to year At the end of five years, all partners share equally On all matters that require a vote in the partnership meetings, the junior partner is permitted one vote while the senior partners are permitted two votes

Comment

It is obvious from the replies given that several different methods of division of income are in effect and that there is no single pattern that has yet emerged as being outstandingly "best" In general the method of equal division of income between physicians in a group appears to work fairly well if the senior partners who are receiving the equal division are of approximately the same age and capacities and lacking in personal jealousies In larger groups, in which there is considerable variation in earning power by reason of age, specialty, amount of work done, and like factors, it often becomes difficult to continue such equal division

Comparatively few of the groups base the income of the physicians on bookings alone This illustrates the point that has been frequently raised about group practice, namely, that it should be a team activity and that physicians in groups are peculiarly dependent on each other for their professional earning capacity Furthermore, as has been pointed out on numerous occasions, when the incomes of physicians in groups are based exclusively on bookings of the individual in essence each physician is continuing to practice independently, though under one roof

The other sections of this report indicate that the methods of division of income employed are not necessarily completely satisfactory to the physicians involved Consequently many groups frequently reconsider the method that they use in such division the general tendency in established groups seems to be for a departure both from completely equal sharing and from income based on bookings alone and toward the use of multiple criteria along the lines of the point system or by salary determined by an executive committee on the basis of similar criteria

MEDICAL NEWS

CALIFORNIA

Grant in Neurosurgery —A $52,000 grant has been awarded the Mount Zion Hospital Neurosurgical Institute, San Francisco, by the U S Air Force for neurophysiological studies in deep-brain structure The one-year grant, which will be for both research and treatment, is to cover special electronic equipment Installation of this special equipment is expected to be completed by the end of summer

Soiland Memorial Lecture —The Albert Soiland Cancer Foundation announces that the fifth annual Soiland Memorial Lecture, "Treatment of Cancer of the Breast," will be given by Dr François Baclesse of Paris, France, at 8 p m, Aug 10, in the auditorium, Los Angeles County Medical Association, 1925 Wilshire Blvd, Los Angeles Physicians are cordially invited to attend Dr Baclesse is chief of service (roentgen therapy) at the Foundation Curie (Institut du Radium), honorary radiotherapist, American Hospital, Paris, and honorary member of the American Radium Society

Personal —Dr Etta S Lund, Willows, was honored at a '50 Golden Years" reception sponsored by the Glenn General Hospital Auxiliary and other Willows organizations —Dr Hyrum C Crockett, Hayward, a past-president of the Alameda Medical Association, was recently chosen as outstanding citizen of the year by the Hayward Lions Club —Dr William P Longmire, professor of surgery, University of California at Los Angeles School of Medicine, has been made honorary professor of surgery at the Free University of Berlin in recognition of his contributions to its surgical program Dr Longmire served as visiting professor at the Free University while on active duty with the U S Air Force in Europe —Dr Ronald Reuben, assistant clinical professor in pediatrics, University of California at Los Angeles School of Medicine, has been named chief of staff for the Sunair Foundation for Asthmatic Children, a nonprofit organization that maintains a home in Tujunga for needy asthmatic children Dr Reuben, a staff member of Cedars of Lebanon, University of California at Los Angeles, and Los Angeles County hospitals, serves in the university's Allergy Clinic —Dr Vincent C DiRaimondo, an assistant research physician in the metabolic unit, University of California Medical School, San Francisco, has been awarded a five-year scholarship by the John and Mary R Markle Foundation, which will provide $30,000 toward his support or research, or both Under the supervision of Dr Peter H Forsham, director of the unit, Dr DiRaimondo has helped to develop new procedures for estimation of the potency of corticotropin and other preparations used in the treatment of rheumatic diseases

DELAWARE

Society News —The Delaware Psychiatric Society recently elected Dr William A Byrne, Wilmington, president, Dr H George DeCherney, Farnhurst, vice-president, and Dr Walter D Davis, Wilmington, secretary-treasurer

Dr Gehrmann Honored —Dr George H Gehrmann, Chadds Ford, Pa, former medical director of the duPont Company in Wilmington, was awarded the ninth Alumni Medallion for Distinguished Service to American Medicine by the State University of New York College of Medicine at New York City, Brooklyn, during commencement exercises June 7 Dr Gehrmann was cited for his contributions to the health of workers in industry, for leadership over more than 40 years in industrial medicine, and for bringing about the collaboration of industry and medicine to protect and preserve the health of the American worker Dr Gehrmann, who reached the mandatory retirement age in 1955, has been credited with creation of the American Academy of Occupational Medicine He was also one of the leaders in the effort to raise professional and educational standards that culminated in the establishment of a specialty board in occupational medicine in 1955

ILLINOIS

Funds Donated to Medical Society by High School Students —The student councils of the Quincy Senior and the Notre Dame of Quincy high schools have given the Adams County Medical Society $130, the balance of funds in their treasuries following the activities of the 1956 senior classes These funds, which have been turned over to the public relations committee of the medical society, will be used to erect for each of these high schools a permanent health exhibit, which will be kept up-to-date by the health education bureau of the Adams County Health Department, under the supervision of the medical society committee

Chicago

Award to Dr Davidsohn —Dr Israel Davidsohn, head, department of pathology, Chicago Medical School, received the Dr Morris L Parker award at the 42nd commencement of the school, June 16 The $500 award was conferred on him for his research in pathology, particularly as related to blood and immunology Dr Davidsohn is a past-president of the Chicago and Illinois Pathological societies He is director of research Mount Sinai Medical Research Foundation, pathologist and director of laboratories, Mount Sinai Hospital (affiliated with the school as a teaching hospital), and resident consultant, Armed Forces Institute of Pathology, Washington, D C

University News —Dr William R Barclay, who has been with the University of Chicago Clinics since 1948, has been promoted to the rank of associate professor of medicine —Following a tradition initiated by the senior class of 1954, the present graduating class of the Chicago Medical School is pledging a gift of $68,000 to the school —Dr Theodore N Pullman, who has been associated with the University of Chicago since 1944, has been promoted to an associate professorship of medicine, as has Dr David W Talmage, who has been affiliated with the medical school since 1952 —Dr J Frederick Bell, who has been associated with the U S Public Health Service, stationed at Rocky Mountain Research Laboratory in Montana, is joining the medical staff of the University of Chicago to direct viral and rickettsial fever research for the Navy at Cairo, Egypt —Dr Charles P McCartney, who has been associated with the University of Chicago since 1943 except for three years in the United States military services, has been made associate professor of obstetrics and gynecology at the school of medicine —Dr R Hugh Dickinson has been named associate professor in psychiatry at the University of Chicago Clinics For over five years Dr Dickinson has been in Omaha, where, besides private practice, his activities included a half-time position at the University of Nebraska College of Medicine as associate professor and assistant director of the Nebraska Psychiatric Institute in charge of training and education Also for five years he has taught graduate students in the field of social work and has been consultant to the Family and Children's Service Agency in Omaha

KANSAS

Dr Bearg Accepts Philadelphia Appointment —Dr Philip A Bearg, Topeka, who has served the state health department as a pediatric consultant in the maternal and child health division and as state epidemiologist, has been appointed professor of public health at Jefferson Medical College of Philadelphia and director of the Fife-Hamill Memorial Health Center Dr Evalyn S Gendel, Topeka, who has assisted Dr Bearg with the poliomyelitis vaccine program, will be responsible for poliomyelitis vaccine distribution

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Physicians are invited to send to this department items of news of general interest for example those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting

KENTUCKY

Personal—Dr Annie S Veech and Dr Alice N Pickett retired Louisville physicians received the achievement award of the Alumnae Association of their alma mater, the Woman's Medical College of Philadelphia June 6 Dr Pickett was head of the obstetrics department of the University of Louisville School of Medicine for 25 years Dr Veech organized and was head of Kentucky's first maternal and child health program

Society News—The University of Louisville School of Medicine in cooperation with the Kentucky State Medical Association and the Kentucky Academy of General Practice sponsored a commencement postgraduate seminar at the Louisville General Hospital June 4 The following Louisville physicians spoke at the seminar J Murray Kinsman dean of the school, Douglas M Haynes, William M Christophersen, Beverly T Towery, Hugh B Lynn Rev O McMorris, and Frank Falkner —Dr Clyde C Sparks, Ashland immediate past-president of the Kentucky State Medical Association, moderated a panel discussion at a meeting of the Kentucky Federation of Women's Clubs June 5, in Louisville Panel members were Drs W Clark Bailey Harlan A M A delegate, Garnett J Sweeney Liberty Kentucky State Medical Association councilor and former chairman of the committee on general practice J Duffy Hancock, Louisville, past-president of the Kentucky State Medical Association and former A. M A delegate, and W Vinson Pierce, Covington A M A delegate The discussion concerned the contributions that the medical profession makes to freedom

MASSACHUSETTS

Dr Meigs Honored—On April 23, the Joe Vincent Meigs Conference Room was dedicated at the Vincent Memorial Hospital Boston, by Mr Louis Curtis, chairman of the board of trustees of the hospital and Dr Meigs portrait was unveiled by Dr Langdon Parsons professor of gynecology at Boston University School of Medicine The portrait, painted by Alfred Jonniaux former Belgian court painter, was given to the hospital by a group of Dr Meigs former assistants including Dr Parsons Dr Somers H Sturgis, chief of the gynecology service at Peter Bent Brigham Hospital, Dr John McLean Morris, associate professor of gynecology at Yale University, and Dr Howard Ulfelder present chief of staff of the Vincent Memorial Hospital and other members of the hospital staff Dr Meigs joined the staff of Vincent Memorial Hospital in 1921 and in 1930, was the first man to be appointed chief of staff He became the first chief of the gynecology service at Massachusetts General Hospital in 1941 He retired from these two posts on June 30 1955, while continuing his teaching as clinical professor of gynecology at Harvard Medical School Dr Meigs is further honored by the fact that funds are now being raised to endow a chair at the Harvard Medical School in his name

MICHIGAN

Bequest for Medical Education—The late Dr Henry A Luce of Detroit past-president of the Michigan State Medical Society who died Oct 28 1955 bequeathed $1,000 to the Michigan Foundation for Medical and Health Education, earmarked for psychiatric research and study Dr Luce had been active in the work of the Michigan Foundation having been one of its original members

Dr Mellins Accepts New York Appointment—Dr Harry Zachary Mellins assistant professor of radiology, Wayne University College of Medicine and head of the radiology department at Sinai Hospital in Detroit has been named chairman of the department of radiology at the State University of New York College of Medicine at New York City, Brooklyn, and director of radiology at Kings County Hospital A graduate in 1944 of the Long Island College of Medicine (now State University of New York College of Medicine at New York City, Brooklyn), Dr Mellins was formerly a postgraduate fellow of the Atomic Energy Commission and assistant professor of radiology at the University of Minnesota Medical School Minneapolis

MISSOURI

Chair of Child Psychiatry Endowed—The Washington University School of Medicine, St. Louis has received from the Ittleson Family Foundation $400 000 to endow the Blanche F Ittleson Chair of Child Psychiatry said to be the first endowed professorship of child psychiatry in the United States The Ittleson Family Foundation was established in 1932 by the late Henry Ittleson founder of the C I T Financial Corporation "for the promotion of the well-being of mankind throughout the world, including as means to that end research publication the establishment and maintenance of charitable religious and educational activities agencies, and institutions and the aid of any such activities agencies, and institutions already established" Mrs Ittleson widow of the founder has worked for many years to establish programs that would develop the mental psychological, and emotional health of children and adults In 1954 she was U S representative at the annual meeting of the World Federation for Mental Health in Canada, and last year, shortly before her 80th birthday, she flew to Istanbul Turkey to attend the annual meeting of the federation, as representative of the National Association for Mental Health the Menninger Foundation and the Austen Riggs Center

Personal—Dr Bernard Becker head, department of ophthalmology Washington University School of Medicine St Louis has been selected as recipient of the 1956 Edward Lorenzo Holmes award of the Institute of Medicine of Chicago, in recognition of his work on the pathological physiology of glaucoma and the relationship of adrenal steroids to diabetic vascular disease —At the annual meeting of the Missouri Social Hygiene Association Dr Jules H Kopp, St Louis was presented an honorary life membership in the American Social Hygiene Association in recognition of nearly 20 years of service to the public welfare Dr Kopp has been active in promoting the prenatal and premarital blood test laws in Missouri and in developing a social hygiene program in the St Louis high schools He is a past-president of the Maryland School Parent-Teachers Association and was a member of the Clayton P T A Council

NEBRASKA

Crippled Children's Clinics—Crippled Children's Clinics have been scheduled for Aug 11 at the high school O'Neill and for Aug 28 at the Elks Club Broken Bow

Promoted to Professorship—The University of Nebraska College of Medicine Omaha has announced the following promotions from associate professorship to professorship Herbert Paul Jacobi Ph D , to professor in the department of biochemistry of which he is chairman Dr Joseph Daniel McCarthy to professor of internal medicine, Dr Harry W McFadden to professor of microbiology continuing as chairman of that department, and Dr Ralph C Moore to professor of radiology

NEW YORK

Radiation Record Program—In accordance with a recommendation of the National Academy of Science that "records should be kept for every individual showing his total accumulated lifetime exposure to radiation" the New York State Radiological Society is preparing exposure record cards that will be distributed to members of the society and made available to all radiologists practicing in the state and to hospitals A table of typical x-ray exposures indicating the radiation dose to the patient is also being prepared to assist physicians in filling out the record cards The card may be given to the patient after each x-ray examination to serve as a permanent record of his exposure Blank spaces will be provided for future entries The society has been engaged in a program of education and of cooperation with the New York State Department of Health to keep within acceptable limits the x-ray exposure of patients and medical personnel

Dr Browder Honored—A testimonial dinner was given at the Brooklyn Club June 15 in honor of Dr E Jefferson Browder by 23 former residents of the neurosurgical service at Kings County Hospital Dr Browder is professor and chairman of neurosurgery at the State University of New York College of Medicine at New York City Brooklyn and director of neurosurgery at the Kings

County Hospital He has been on the college faculty since 1925 and on the hospital staff since 1928 A portrait of Dr Browder was presented to the hospital and the college of medicine for the group by Dr H Russell Meyers, professor of surgery and neurosurgery at the State University of Iowa College of Medicine, Iowa City The portrait was accepted for the hospital by Dr Israel Magelaner, superintendent, and for the college by Dr Howard W Potter, dean Painted by the artist Giuseppe Trotta, the portrait will probably be hung in the lobby of the "E" building at Kings County Hospital

New York City

Bancroft Lecture —The Alumni Association of Beth David Hospital presented the annual Frederic W Bancroft Lecture in Surgery June 7 Dr Louis M Rousselot, director of surgery, St Vincent's Hospital, and professor of clinical surgery, New York University College of Medicine, had as his subject "Application of Portal Portography in Studies of the Portal System and Application in Surgery of Portal Hypertension"

Group for Study of Diabetes —New York University-Bellevue Medical Center announces that a group for the study of diabetes has been formed under the direction of Dr Elaine P Ralli, who started the first diabetic clinic at Bellevue Hospital in 1928 Dr Ralli is medical director of the outpatient services of the New York City Department of Hospitals and associate professor of medicine at New York University College of Medicine Mary E Dumm, Ph D, assistant professor in the department of medicine, who is responsible for the experimental aspects of the program, is assisted by several research technicians

Courses in Physical Rehabilitation —The Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, 400 E 34th St, will offer a three-week seminar in physical rehabilitation methods for nurses, Oct 22-Nov 9, 1956, Jan 7-25 and March 25-April 12, 1957 The course is designed for registered nurses in the hospital as well as in the public health fields Tuition is $75 for the seminar and $25 weekly for additional clinical observation, practice, and field trips The institute will also offer a four-week advanced course in physical rehabilitation methods for physical therapists, Nov 19-Dec 14, 1956, Feb 4-March 1 and April 29-May 24, 1957 Tuition is $100 ($25 per point of either undergraduate or postgraduate credit), registration, $7 Qualified veterans may enroll in the course under the provision of P L 346 or P L 16 Applications and requests for further information may be submitted to Mrs Edith Buchwald Lawton, Director of Rehabilitation Courses for Physical Therapists, Institute of Physical Medicine and Rehabilitation, 400 E 34th St, New York 16

Personal —Dr A Allen Goldbloom on March 9 addressed the Tucson (Ariz) chapter of the Arizona Medical Laboratory Association, his subject being "Newer Laboratory Techniques"—Dr Paul F Russell, formerly staff member of the Rockefeller Foundation and consultant to the World Health Organization, delivered a public lecture on "Some Aspects of Malaria Eradication" April 5 at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore This was one of the De Lamar Lectures in Hygiene —Dr Brittain Ford Payne, clinical professor of ophthalmology, New York University College of Medicine, was recently elected president of the Pan American Association of Ophthalmology, which he has served as assistant secretary since 1948 Dr Payne is executive surgeon and director of clinics and pathology at New York Eye and Ear Infirmary and director of ophthalmology at Lenox Hill Hospital —Dr Geoffrey W Rake was recently appointed scientific director of the International Division of Olin Mathieson Chemical Corporation, a position that carries responsibility for all pharmaceutical, medical, and veterinary research conducted outside the United States by the company's Squibb International Division Since 1953 Dr Rake has served as medical research consultant to the E R Squibb & Sons Division of Olin Mathieson and as research professor of microbiology at the University of Pennsylvania schools of medicine and veterinary medicine in Philadelphia Previously he was director of the Squibb Medical Division and director of the Squibb Institute for Medical Research

Dr Rous Awarded Medal —At the annual meeting of the National Academy of Sciences, April 23-25 in Washington, D C, the Kovalenko medal was awarded to Dr F Peyton Rous, editor of the *Journal of Experimental Medicine* in honor of his contributions to experimental medicine, notably his early observation of an association between viruses and tumor growth and his work on the physiology and pathology of the liver and the physiology of the blood vessels The Kovalenko medal, for outstanding contributions to medical science, was established in 1949 by Michael S Kovalenko, Ph D, in memory of his wife, Jessie Stevenson Kovalenko

OHIO

Dr Higgins Honored —Dr Charles C Higgins, Cleveland, received the Keyes medal at the recent meeting of the American Association of Genito-Urinary Surgeons at Oyster Harbors, Mass

William H Muhlberg Lecture —Beginning in 1956, the joint biennial meetings of the council on diabetes of the Public Health Federation and the Academy of Medicine of Cincinnati will be under the auspices of the William H Muhlberg Lecture, established by the Union Central Life Insurance Company The first lecturer will be Dr Francis D Lukens, Philadelphia Dr Muhlberg, who in 1916 became medical director of the Union Central Life Insurance Company, was the recipient in 1945 of the Public Health Federation's health award for rendering distinguished service to the cause of public health in greater Cincinnati In recognition of his contributions and his work as a loyal and faithful member of the Cincinnati Board of Health, the new health center at 3845 Wm P Dooley By-Pass was dedicated as the Wm H Muhlberg Health Center in 1955 Dr Muhlberg was instrumental in the founding of the American Diabetes Association and served as its first treasurer

Personal —At the invitation of the Russian minister of health, Dr Albert B Sabin, Cincinnati, recently spent four weeks in Russia, where he participated in the 13th All-Union Congress of Epidemiologists, Virologists, Microbiologists, and Hygienists On July 26 Dr Sabin addressed the International Congress of Pediatrics in Copenhagen, where he discussed "The Present Status of Work on Immunization of Human Beings with Live Attenuated Poliomyelitis Viruses" Dr Sabin is professor of research pediatrics at the University of Cincinnati College of Medicine and a fellow the Children's Hospital Research Foundation

OREGON

Fund for Research —A trust fund consisting of securities valued at approximately $200,000 has been established for research at the University of Oregon Medical School, Portland The fund, named in honor of Dr Laurence Selling, professor emeritus of medicine at the medical school, was established by an anonymous friend of the school Income from the money is to be devoted to research projects designated by the dean

Personal —At its annual banquet in Portland the University of Oregon Medical School Alumni Association presented to Dr Herbert M Greene, '04, Portland, its Citation of Meritorious Achievement for having "dedicated more than half a century of service and sacrifice to the alleviation of human suffering" Other graduates of 50 years ago or more who received awards but were not present at the banquet were Dr George W Tamiesie, '02, Portland, Dr Frank E Brown, '00, Salem, and Dr John G Patterson, '03, Klamath Falls

Fulbright Award to Physiology Head —A Fulbright scholarship has been awarded to John M Brookhart, Ph D, professor and head of the department of physiology at the University of Oregon Medical School, Portland, for a year of study with Dr Giuseppe Moruzzi at the University of Pisa, Italy Dr Brookhart and his family plan to sail from New York Aug 22 and will return to the United States in March, 1957 While at the University of Pisa, Dr Brookhart will conduct research in neurophysiology with particular emphasis on mechanisms controlling neuronal discharge

PENNSYLVANIA

Flick Anniversary.—The 100th anniversary of the birth of Dr Lawrence F Flick, Philadelphia a pioneer in the tuberculosis control movement in the United States and a founder of the National Tuberculosis Association will be commemorated in his birthplace Carrolltown, on Aug 11 Those wishing to participate in this observance may obtain additional information from the Cambria County Tuberculosis and Health Association, Johnstown

Philadelphia

Turnoff Memorial Lecture.—Dr Tinsley R. Harrison professor of medicine, Medical College of Alabama, Birmingham, gave the first annual David Turnoff Memorial Lecture "Treatment of the Patient with Angina Pectoris Clinical Research and Practical Aspects," May 2 at the Benjamin Franklin Hotel. This lectureship is sponsored by the Kensington Hospital of Philadelphia in honor of its first chief of medicine, Dr David Turnoff, who died in 1953 Dr Harrison also moderated a panel discussion, "Use of Digitalis Quinidine, and Allied Drugs" Other members of the panel included Drs Louis A. Soloff, Calvin F Kay Samuel Bellet, and William Likoff The arrangements for the affair were under the direction of Drs Saul P Bralow and Morris W Yarrow

Society News.—Dr Jacob Zatuchni was recently elected president and Dr Fred B Rogers secretary of the Temple University chapter of the American Federation for Clinical Research, founded 15 years ago "to stimulate among young workers a persisting interest in investigation in clinical and allied medical sciences" Dr Charles R Shuman, also of the medical school faculty, is currently chairman of the eastern section.

TEXAS

University News.—Dr John B Truslow, former dean of the school of medicine Medical College of Virginia, Richmond, was recently made executive director of the University of Texas Medical Branch at Galveston succeeding Chauncey D Leake, Ph D, who resigned last August to become assistant dean of the college of medicine and professor of pharmacology at Ohio State University, Columbus As executive director of the University Medical Branch, Dr Truslow administers a program for more than 1,100 students, 2 200 staff members and 7 hospitals

Medical Teaching Grant.—A $500,000 grant for medical teaching and research has been presented to the University of Texas by the William Buchanan Foundation of Texarkana, the major portion for use at Southwestern Medical School, Dallas The bulk of the grant is to be allocated for training programs postgraduate programs teaching programs, fellowship and scholarship programs and research in medicine public health sanitation nursing and related medical fields" $38 000 is the balance of a $69 000 commitment made earlier to assist Southwestern in research and study of tuberculosis and related diseases in children

WISCONSIN

Personal.—Dr Anthony V Pisciotta assistant professor of medicine Marquette University School of Medicine, Milwaukee received the Encaenia award June 12 in New York City as the member of his graduating class best exemplifying the ideals of Fordham University, New York.—Dr Vaughan P Simmons, assistant professor of pharmacology, Marquette University School of Medicine Milwaukee has been appointed assistant medical director of the Northwestern Mutual Life Insurance Company Dr Simmons has been associated with the medical school for the past six years

Joint Recipients of Pasteur Award.—Joshua Lederberg Ph D, assistant professor of genetics University of Wisconsin, Madison and Esther Lederberg Ph D his wife have been named the first joint recipients of the Pasteur award made annually by the Society of Illinois Bacteriologists The Lederbergs were selected to receive the award in recognition of their outstanding contributions to microbiology particularly for their fundamental studies in bacterial genetics" With Prof Edward L Tatum Ph D (now of Stanford University San Francisco but then at Yale University, New Haven, Conn), Professor Lederberg pioneered in studies of sexual recombination in bacteria and discovered that individual bacteria could combine their genetic traits and that combined traits were then transmitted to offspring Since announcement of this work in 1946 the Lederbergs have continued research into the genetic mechanisms by which recombination is accomplished

GENERAL

Grant in Muscular Dystrophy.—Under the joint sponsorship of the University of Texas Medical Branch in Galveston and the National Muscular Dystrophy Research Foundation a five-year, $250,000 research project will be initiated at the Medical Branch by M Mason Guest Ph D, consultant for the Medical Branch hospitals and chairman of the department of physiology, and a committee of nine medical department men using the teamwork approach Simultaneously the Medical Branch will set up the first muscular dystrophy clinic in the southwestern region of the United States The National Muscular Dystrophy Research Foundation has its headquarters at 709 Main St., Liberty, Texas Dr Charles I Stone Sr, professor of the Medical Branch's department of internal medicine, is chairman of the foundation's medical advisory board The foundation was established in 1944 by Misses Sallie and Nadine Woods for the benefit of victims of muscular dystrophy

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	July [illegible] 1956 Paralytic Type	 Total Cases Reported	July 9 1955 Total
New England States			
Maine			2
New Hampshire			
Vermont	2	2	3
Massachusetts		1	24
Rhode Island			
Connecticut		2	[illegible]
Middle Atlantic States			
New York	2	[illegible]	[illegible]
New Jersey	1	3	3
Pennsylvania		3	7
East North Central States			
Ohio	1	11	14
Indiana	4	10	6
Illinois	17	[illegible]	[illegible]
Michigan		4	18
Wisconsin		2	6
West North Central States			
Minnesota	1	1	13
Iowa	1	[illegible]	11
Missouri	2	6	4
North Dakota		2	3
South Dakota			3
Nebraska		1	3
Kansas	1	2	3
South Atlantic States			
Delaware	1	1	3
Maryland	1	1	7
District of Columbia			1
Virginia		1	7
West Virginia	1	1	2
North Carolina	4	6	8
South Carolina	1	3	12
Georgia	1	2	6
Florida	3	7	3
East South Central States			
Kentucky		9	[illegible]
Tennessee	1	1	10
Alabama			8
Mississippi	7	12	
West South Central States			
Arkansas	3	[illegible]	[illegible]
Louisiana	[illegible]	[illegible]	8
Oklahoma	[illegible]	10	12
Texas	19	[illegible]	[illegible]
Mountain States			
Montana			1
Idaho	2	[illegible]	7
Wyoming	1	1	
Colorado	[illegible]	4	[illegible]
New Mexico	3		8
Arizona	1	4	
Utah		1	
Nevada		1	4
Pacific States			
Washington	1	1	5
Oregon	1	[illegible]	4
California	[illegible]	[illegible]	43
Territories and Possessions			
Alaska			1
Hawaii			3
Puerto Rico	1	1	[illegible]
Total	[illegible]	[illegible]	[illegible]

Lasker Awards.—The Albert and Mary Lasker Foundation announces the following winners of the Albert Lasker Medical Journalism awards for outstanding reporting on medical research and public health during 1955

Newspapers Mr Selig Greenberg, staff writer the Providence (R I) *Journal and Evening Bulletin*, for a series of articles in that newspaper, February, 1955, on 'Hormones Revolution in Medicine , and Mrs Joan Geyer staff writer, the Provo (Utah) *Daily Herald*, for a series of articles published in that newspaper, May, 1955, on ' The Secret Sickness—Mental Illness

Magazines Mr Steven M Spencer, associate editor the *Saturday Evening Post*, for the article, 'Mystery of the Blinded Babies published in the magazine in June 1955

Television The March of Medicine documentary film and live-action series produced by Smith Kline & French Laboratories, Philadelphia, over the National Broadcasting Company network beginning in June, 1952

Given for the seventh year, in cooperation with the Nieman Foundation for Journalism at Harvard University, the awards were presented at a luncheon honoring the winners, May 23, in the Ambassador Hotel, New York City Individual winners received $1,000 each, illuminated scrolls, and silver statuettes of the Winged Victory of Samothrace, symbolizing victory over death and disease Dr Howard A Rusk, associate editor, the New York *Times*, and a member of the foundation's awards jury, was chairman of the luncheon, at which the speakers included Dr Leona Baumgartner, commissioner, New York City Department of Health, and Representative J Percy Priest (Tenn), chairman of the House Interstate and Foreign Commerce Committee and a former editor of the Nashville *Tennessean*

FOREIGN

Meeting on Mental Health.—The ninth annual meeting of the World Federation of Mental Health will convene in Berlin, Germany, Aug 12-17, to discuss "Mental Hygiene in the Parental Home, in Homes, and Schools " It is anticipated that all 44 member nations of the federation will send delegates to Berlin The general secretary of the meeting is Esther M Thornton, 19 Manchester St , London, W 1 , England

Congress of Internal Medicine.—The fourth International Congress of Internal Medicine will meet in Madrid, Spain, Sept 19-23, to consider The Role of the Adrenals in the Pathogenesis and Evolution of Internal Diseases" and ' Bronchial Asthma and Emphysema " The opening ceremony at 4 p m Wednesday will be followed by a documentary film, Monumental and Artistic Spain " A symposium on the present situation of internal medicine is scheduled for 7 p m Among the presentations during the congress will be ' The Dynamics of Adrenal Cortical Activity in Health and Disease' by Dr Peter H Forsham, San Francisco, "The Syndrome of Primary Aldosteronism" by Dr Jerome W Conn, Ann Arbor, Mich , and "Influence of Bilateral Adrenalectomy on Human Disease" by Dr Charles B Huggins, Chicago The numerous social activities include a concert, a fête in the Retiro Park, the official banquet, and a visit to Toledo

Congress of Allergology.—The third European Congress of Allergology, organized by the Italian Society of Allergology, will be held in Florence, Italy, Sept 12-15, under the sponsorship of the International Association of Allergology Subjects to be considered will include Genesis and Localization of Antibodies, Allergy and the Neurovegetative System, Increasing Factors of Allergic Phenomena at the Present Time, Mechanism of Delayed Reactions, Classification and Terminology in Allergy, and Standardization of Allergenic Extracts Among the participants will be Drs Leslie N Gay, Baltimore (Experience with Steroids in the Treatment of Chronic Bronchial Asthma), Aaron N Gorelik, New York City (The Relationship of Allergy to Heart Disease), and Frederick W Wittich, Minneapolis (Modern Treatment of Chronic Asthma in Aged) and Manesseh G Sevag, Ph D , Newtown Square, Pa (Drug Tolerance and Allergic Phenomena) Further information may be obtained from the general secretary, Prof Umberto Serafini, Istituto di Patologia Medica, Viale Morgagni, Florence, Italy

Congress of Cardiology.—The second European Congress of Cardiology will convene in Concert Hall, Stockholm, Sweden, Sept 10-14 Morning programs will include a lecture, "The Clinical Applicability of the Heart Volume Determination", panel discussion on Organic Peripheral Artery Disease, Isolated Atrial and Ventricular Septal Defects, Acquired Aortic Stenosis and Pulmonary Hypertension and symposiums on Etiology and Pathogenesis of Atherosclerosis, Circulation in Hypothermia, and Cardiac Output and Its Regulation Concurrent round-table conferences in the afternoons will include Treatment of Essential Hypertension, Treatment of Paroxysmal Tachycardias and Other Ectopic Rhythms, Phonocardiography, and Indications and Hazards of Heart Catheterization and Angiocardiography Speakers at these symposiums, panels, and round-table conferences will be specially invited Numerous social events and excursions have been planned On Sunday there will be an informal reception at the National Art Gallery, on Monday and Wednesday a performance at the 18th century Drottningholm Court Theatre with buffet-dinner in the foyer, and on Tuesday a banquet in the city hall Precongress and postcongress tours have also been scheduled

CORRECTION

The Physician in Service.—In the letter to the editor titled "The Physician in Service" in The Journal, July 7, 1956, page 1001, the first word in the ninth line should have been ' now,' so that the sentence would read 'In the main, the various letters that have been published have been written by Naval Reserve medical officers now on inactive duty '

EXAMINATIONS AND LICENSURE

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY *Oral* St Louis, Oct 12-15 Final date for filing applications was April 1 Sec Dr B M Kesten One Haven Ave , New York 32

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Oct 15 1956 Final date for filing application was May 1 *Oral Examinations in 1956* New York City, Sept 21-25 Final date for filing application was April 1 Exec. Sec , Dr William A Werrell 1 West Main St Madison 3, Wis

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY *Part I* 1957 Applications for certification for the 1957 examinations are now being accepted All candidates are urged to make such application at the earliest date possible Deadline date for receipt of applications new and reopened is October 1 Dr Robert L Faulkner 205 Adelbert Road Cleveland 6

AMERICAN BOARD OF OPHTHALMOLOGY *Practical Examination* St Louis Oct 20-24 *Writen* Jan 21 1957 *Applications must be filed before* July 1, 1956 Sec , Dr Merrill J King Box 236, Cape Cottage Branch Portland 9, Maine

AMERICAN BOARD OF ORTHOPAEDIC SURGERY *Oral Part II* Chicago January 1957 Final date for filing application is Aug 15 Sec. Dr Sam W Banks 116 South Michigan Ave Chicago 3

AMERICAN BOARD OF OTOLARYNGOLOGY *Written and Oral* Chicago Oct 8-11 Sec., Dr Dean M Lierle, University Hospitals Iowa City

AMERICAN BOARD OF PATHOLOGY *Written for Pathological Anatomy and Clinical Pathology*, Oct 4-6 Final date for filing application is Sept 1 Sec , Dr Edward B Smith, 1040-1232 W Michigan St , Indianapolis 7

AMERICAN BOARD OF PEDIATRICS *Oral Part II* New York City Oct 12 14 and San Francisco, Dec 7-9 Sec., Dr John McK Mitchell 6 Cushman Road Rosemont, Pa

AMERICAN BOARD OF PLASTIC SURGERY Miami Oct 17-19 Corres Sec , Mrs Estelle E Hillerich 4647 Pershing Ave St Louis 8

AMERICAN BOARD OF PREVENTIVE MEDICINE *Oral and Written Public Health* Philadephia Nov 8-10 Sec , Dr Ernest L Stebbins 615 N Wolfe St , Baltimore Md

AMERICAN BOARD OF PROCTOLOGY *Oral and Written* Philadephia Sept 29 Final date for filing application was June 28 Sec , Dr Stuart T Ross, 520 Franklin Ave , Garden City N Y

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY *Oral* New York Dec 10-11 and New Orleans Mar 18-19 Sec. Dr David A Boyd Jr 102-110 Second Ave , S W Rochester, Minn

AMERICAN BOARD OF RADIOLOGY Los Angeles Sept 30 Oct 4 Final date for filing application was June 1 Sec Dr B R Kirklin Kahler Hotel Bldg Rochester Minn

AMERICAN BOARD OF SURGERY *Part I* Various Centers Throughout the United States and in Certain Military Centers Abroad Oct 31 *Part II* Buffalo, Sept 24-25, Rochester, Minn , Oct. 15-16, New Haven, Nov 19-20, Kansas City, Kan Dec 10-11 Los Angeles, Jan 14-15 San Francisco Jan 17-18, Houston, Feb 18-19 Nashville Mar 11-12 Boston, April 8-9, and New York June 10-11

AMERICAN BOARD OF UROLOGY February 1957 Sec Dr William Niles Wishard, 1711 N Capitol Ave Indianapolis 7

BOARD OF THORACIC SURGERY *Written* Various centers throughout the country, September Final date for filing applications is July 1 Sec. Dr William M Tuttle 1151 Taylor Ave Detroit 2

GOVERNMENT SERVICES

ARMY

Colonel Bennett Retired—Col Eaton W Bennett chief, department of neuropsychiatry Brooke Army Hospital, who retired in July after 33 years of military service has joined the staff of the state hospital in San Antonio Texas as a senior physician He is a diplomate of the American Board of Psychiatry During World War II Colonel Bennett served in the Far East with the 10th Army, as commanding officer of two general hospitals and as surgeon of the Philippine Base Command

Personal—Dr Stanhope Bayne-Jones, technical director of research for the Army Surgeon General's Office, Washington D C, received an honorary doctor of laws degree at Tulane University, New Orleans, May 28, when he delivered the graduation address, speaking on "The Liberal Sciences

NAVY

Middle East Medical Assembly at Beirut—Capt Elmer R King chief of the x-ray department at the Naval Hospital in Bethesda Md, presented a paper at the sixth Middle East Medical Assembly in Beirut, Lebanon, April 6-8, on Present Status of Radio Iodine in Thyroid Disease Capt Donald W Miller, chief, surgical service, Naval Hospital Newport, R I also attended the assembly, as did the following officers who are attached to the U S Naval Medical Research Unit, no 3 Cairo, Egypt Commander Stanley W Hanford, head department of physiology Lieut Commander William C E Phschner department of clinical investigations, Lieut Edgar M Neptune Jr, department of clinical investigations and Lieut Charles D McGuire, head, department of bacteriology

Medical Meeting in Cuba—Members of the Cuban Medical Society and medical officers of the Cuban Navy in April attended two series of lectures given by Lieut Walter R Kirker M C U S N R The first series was given at Camaguey and the second at the Curie Hospital in Havana These lectures and a movie shown pertained to the medical aspects of diving Lieutenant Kirker is on duty at the Naval School, Underwater Swimmers, U S Naval Station, Key West, Fla

Personal—Rear Adm Bartholomew W Hogan the surgeon general was the guest speaker at an alumni dinner on June 13, at the Stritch School of Medicine, Loyola University, Chicago On July 14, Admiral Hogan was in Lima, Peru, attending the opening ceremonies of the new Peruvian Medical Center, which is located between Lima and Callal and is modeled after the U S Naval Hospital at Beaufort S C

New Navy Hospital at Portsmouth—A new 800-bed U S Naval Hospital is to be built at Portsmouth, Va, at a cost of about 13 million dollars At the ground-breaking ceremony June 20, Rear Adm French R Moore M C, assistant chief for planning and logistics represented the Bureau of Medicine and Surgery

VETERANS ADMINISTRATION

Treatment of Mental Patients—Discharges of former chronically ill mental patients, now treated with tranquilizing drugs increased 36% at the Northampton (Mass) Veterans Administration Hospital according to a recently released survey In the last six months of 1954, when few patients were treated with tranquilizing drugs (chlorpromazine and reserpine), the hospital reported 86 patients discharged compared to 118 in the same period in 1955 when extensive drug treatment was given

Among patients hospitalized five years or longer, it was found that the percentage of improved cases increased even more when these patients were treated by drugs as compared to other types of treatment Thirty-three were discharged among this group as compared to 19 the year before without benefit of drugs or a 77% increase In those hospitalized less than five years, 85 were discharged against 66 or a 69% increase

Of 533 patients receiving different types of psychiatric treatment 202 were treated with tranquilizing drugs and of this latter group 76% showed improvement The percentage of improvement in those treated with the tranquilizing drugs was considerably higher than among those given other types of psychiatric treatment Many of those successfully treated with drugs had failed to improve under other types of treatment The other forms of psychiatric treatment studied were found effective to the following degrees insulin 59% electric shock 54%, and lobotomy, 46% The group surveyed ranged in age from 18 to 69 years and had been hospitalized for periods of from one month to 30 years

Protection Against Fire in Hospitals—The Veterans Administration has released a progress report on its program of providing protection against fire for sick and disabled veterans in VA hospitals VA has equipped in recent years or is equipping hundreds of buildings in its older hospital plants with such protective features as automatic sprinkler systems, stair well enclosures fire escapes fire doors smoke barriers and fire alarm systems By June 30, 1956, VA will have completed construction on 35 or more major protection projects with an estimated construction cost of nearly 2 million dollars Construction is under way on 53 other projects

About 31 000 beds have been provided in the 61 new VA hospitals placed in operation since the end of World War II In addition to increasing the bed capacity, the erection of these modern, fire-resistive hospitals has enabled the agency to abandon 14 older non-fire-resistive hospitals Construction additions at 38 other stations have added nearly 14 000 more beds in fire-resistive buildings many of which replaced older units

At the present VA is constructing a fire-resistive 1 000-bed replacement hospital at Topeka, Kan, and subject to approval of budget programs, has plans for the replacement with fire-resistive construction of 10 hospitals and the extensive modernization of the older hospitals in the system

Personal—Dr George M Lyon, formerly of the Department of Medicine and Surgery Washington, D C, became manager of the Huntington, W Va VA Hospital April 1, succeeding Dr Haughton W Bailey, who is being reassigned to professional duties with the Department of Medicine and Surgery

PUBLIC HEALTH SERVICE

Courses on Venereal Disease—The U S Public Health Service announces that laboratory refresher courses on the serology of syphilis management and control of syphilis serology by the regional laboratory, and tests for syphilis using Treponema pallidum will be offered at the Venereal Disease Research Laboratory in Chamblee, Ga from August 1956 to May, 1957 Serology of Syphilis (Aug 20-31 Sept. 17-28 Dec 3-14 Feb 4-15 and March 18-29), Management and Control of Syphilis Serology by the Regional Laboratory (Oct 8-19 April 22-May 3), and Tests for Syphilis Using the Treponema Pallidum (Oct 22-Nov 2 April 8-19) The courses in serology of syphilis are designed to provide refresher training to senior operating personnel of state and public health service laboratories and to other qualified individuals from the United States and other countries Applicants for the courses in tests for syphilis using the Treponema pallidum should have had adequate experience in the field of serology and should be in supervisory positions The course in management and control of syphilis serology by the regional laboratory is designed for assistant laboratory directors and senior laboratory staff members Applications for any of the courses must be signed by the state health office or state laboratory director unless the applicant is an employee of the Public Health Service In such instances, application must be approved by the medical officer-in-charge Application blanks may be obtained from the director, Venereal Disease Research Laboratory Division of Special Health Services Public Health Service Department of Health, Education and Welfare P O Box 185 Chamblee Ga

DEATHS

Watkins, William Warner ⊕ Phoenix, Ariz, born in Keysville, Va, Oct 30, 1883, Medical College of Virginia, Richmond, 1906, secretary in 1912-1913, and again in 1941-1943, of the Arizona State Medical Association, of which he was president in 1918-1919, helped reorganize the Maricopa County Medical Society, serving at various times as its president, secretary, and librarian, member of the House of Delegates of the American Medical Association in 1924, in 1914 became a charter member of the Medical and Surgical Association of the Southwest, an organization that later became the Southwestern Medical Association, serving as vice-president in 1919, as president in 1920, and as secretary from 1924 to 1935, in 1912 aided in the organization of the Arizona Association for the Study and Prevention of Tuberculosis, now known as the Arizona State Tuberculosis and Health Association, serving as its president in 1914 and its treasurer for some 25 years, life member of the American College of Physicians and served as its governor for Arizona for 10 years, member of the American Association for the Advancement of Science and of the American Roentgen Ray Society and from 1921 to 1923 served that organization as its secretary and member of the council, member of the Radiological Society of North America and for two terms vice-president, one of the charter members of the American College of Radiology, and a member of its first board of chancellors, member of the American Trudeau Society, specialist certified by the American Board of Radiology, associated with St Luke's, St Joseph, and Good Samaritan hospitals, for many years served on the board of directors of the Y M C A, and for two years served as its president, from 1912 to 1916 editor of the *Arizona Medical Journal*, which in 1922 merged with *Southwestern Medicine*, became editor-in-chief of the combined journal, a position he held until 1935, at one time was on the editorial board of *Radiology*, died April 10, aged 72, of carcinoma of the sigmoid

Nash, Philip Ingram, Brooklyn, N Y, born July 16, 1875, Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1902, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, member of the Industrial Medical Association, an associate member of the American Medical Association, clinical professor emeritus of medicine, State University of New York College of Medicine, formerly known as the Long Island College of Medicine, past-president of the Kings County Medical Society, first president of the Coney Island Chamber of Commerce, from 1934 to 1951 medical assistant district attorney for Kings County, consulting physician, St Francis Hospital in Poughkeepsie, N Y, served as chairman of the medical board of the Harbor Hospital and the Coney Island Hospital, where he was associated for many years, and where he died April 25, aged 80, of arteriosclerotic heart disease

Condit, William Henry ⊕ Minneapolis, born in 1872, University of Minnesota College of Medicine and Surgery, Minneapolis, 1899, specialist certified by the American Board of Obstetrics and Gynecology, formerly on the faculty of his alma mater, served as councilor, first vice-president, and for many years treasurer of the Minnesota State Medical Association, which in 1952 presented him with the distinguished service award for "his immeasurable contribution and individual mark of proud achievement in Minnesota's medical progress", on the staffs of the Northwestern and University of Minnesota hospitals, and the Doctors Memorial Hospital, where he died April 21, aged 83, of coronary thrombosis

Hughes, William Franklin ⊕ Indianapolis, born Aug 11, 1871, Medical College of Indiana, Indianapolis, 1902, professor emeritus of ophthalmology at the Indiana University School of Medicine, specialist certified by the American Board of Ophthalmology, past-president of the Indiana Academy of Ophthalmology and Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, fellow of the International College of Surgeons and the American College of Surgeons, before his retirement was on the staffs of the Indianapolis General, Methodist, and St Vincent's hospitals and of the Indiana University Medical Center, died April 19, aged 84, of cerebral hemorrhage

Fulks, Dellivan Meldrum ⊕ Sacramento, Calif, born in Iowa City, Iowa, Jan 10, 1904, State University of Iowa College of Medicine, Iowa City, 1927, specialist certified by the American Board of Orthopaedic Surgery, member of the Industrial Medical Association, veteran of World War II, orthopedic surgeon for the crippled children's services, state department of public health, served as president of the Sacramento Crippled Children's Society, chief of staff, Sacramento County Hospital, member of the staffs of Sutter and Mercy hospitals, at one time on the faculty of his alma mater, died April 17, aged 52, of carcinoma of the rectum

Starr, Louis ⊕ Brooklyn, N Y, L R C P, Edinburgh, L R C S, Edinburgh, and L F P & S, Glasgow, 1939, certified by the National Board of Medical Examiners, specialist certified by the American Board of Orthopaedic Surgery, member of the American Academy of Orthopaedic Surgeons, fellow of the American College of Surgeons, clinical instructor, orthopedic surgery, State University of New York College of Medicine, on the staffs of the Long Island College Hospital, Kings County Hospital, St John's Episcopal Hospital, and the Maimonides Hospital, died April 21, aged 43, of myocardial infarction

Dunn, James Manning, East Hampton, N Y, Albany (N Y) Medical College, 1915, specialist certified by the American Board of Otolaryngology, veteran of World Wars I and II, past-president of the Schenectady County Medical Society, member of the Medical Society of the State of New York, retired from the Veterans Administration July 31, 1952, served on the staffs of the Manhattan Eye, Ear and Throat Hospital in New York City and the Ellis Hospital in Schenectady, died in the Veterans Administration Hospital, Albany, April 10, aged 68

Adams, Charles Joseph ⊕ Kokomo, Ind, Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, veteran of World War I, on the staff of St Joseph Memorial Hospital, died April 7, aged 73, of cerebral hemorrhage

Agnew, Fred F ⊕ Independence, Iowa, Jefferson Medical College of Philadelphia, 1902, fellow of the American College of Surgeons, veteran of World War I, for many years associated with the Peoples Hospital, died April 18, aged 82, of bronchopneumonia

Alexander, Harry Allison ⊕ Boulder, Colo, Indiana University School of Medicine, Indianapolis, 1926, fellow of the American College of Physicians, on the staffs of the Community Hospital and the Boulder-Colorado Sanitarium and Hospital, veteran of World War II, died April 15, aged 56, of coronary thrombosis

Allenburger, Christian Alexander ⊕ Columbus, Neb, Rush Medical College, Chicago, 1895, also a graduate in pharmacy, past-president of the Platte County Medical Society, fellow of the American College of Surgeons, associated with St Mary Hospital, where for 25 years he was chief of the medical staff, died April 26, aged 85, of cerebral hemorrhage and pneumonia

Amidon, Charles Stacey ⊕ Harlingen, Texas, Eclectic Medical Institute, Cincinnati, 1902, formerly on the faculty of his alma mater, practiced in Cincinnati, where he was for many years vice-president of the staff of the Bethesda Hospital, serving as vice-president of the staff, died April 15, aged 77, of coronary thrombosis

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⊕ Indicates Member of the American Medical Association

Angell, David Morrison ⊕ Cochituate, Mass, College of Physicians and Surgeons Boston 1922 Middlesex College of Medicine and Surgery, Cambridge, 1924 died March 7, aged 75 of cancer

Aron, Edward, Chicago University of Illinois College of Medicine Chicago 1933 on the staff of the Manor Hospital a staff member of the Mount Sinai Hospital, where he interned and where he died April 30 aged 50 of acute pulmonary edema and arteriosclerosis

Ashbaugh, Guy A, Riverton Wyo Denver and Gross College of Medicine Denver, 1907 member of the Colorado State Medical Society an associate member of the American Medical Association died in Lakewood Colo April 19 aged 74 of coronary occlusion and intrapulmonary hemorrhage as the result of an automobile accident

Gaston, Mary E, Somerville N J Woman's Medical College of Pennsylvania Philadelphia 1888 on the staff of the Somerset Hospital died April 19, aged 100 of hypostatic pneumonia

Gillis, Floyd Daniels ⊕ Mitchell S D University of Michigan Department of Medicine and Surgery Ann Arbor 1912 fellow of the American College of Surgeons since May 1955 president of the South Dakota State Medical Association on the staffs of the St Joseph's and Methodist State hospitals died May 30 aged 67 of a heart attack

Glasgow, William Adams ⊕ Seattle Dunham Medical College Chicago 1901 one of the founders of Maynard Hospital and president of the board of trustees since its inception died in the Maynard Hospital May 15 aged 77 of gastrointestinal hemorrhage after a cholecystectomy

Glenn, Milton Lourie, Ridley Park Pa University of Michigan Department of Medicine and Surgery Ann Arbor 1899 on the staff of the Taylor Hospital died April 16 aged 87 of a heart attack

Glover, Mary Elizabeth ⊕ San Francisco Hahnemann Medical College of the Pacific, San Francisco 1905 at one time on the faculty of her alma mater on the staff of the Children's Hospital, where she died May 20 aged 75 of injuries received in a fall

Gold, James Douglas ⊕ Bridgeport, Conn College of Physicians and Surgeons medical department of Columbia College New York City 1891 past president of the Connecticut State Medical Association Fairfield County Medical Society and the Bridgeport Medical Society veteran of World War I on the staffs of the Greenwich (Conn) Hospital St Vincent's Hospital and the Bridgeport Hospital where he died April 14 aged 89 of myocardial infarction and coronary occlusion

Green James ⊕ Los Angeles Gross Medical College Denver 1895 died in the French Hospital April 2, aged 82 of myocardial infarction and coronary thrombosis

Greer, Martin Grant N, St Petersburg Fla Western Pennsylvania Medical College Pittsburgh 1900 for many years practiced in Pittsburgh died April 25 aged 82

Gruenwald, Siegfried ⊕ Alton Ill Medizinische Fakultat der Universitat Vienna Austria 1920 member of the American Psychiatric Association assistant superintendent of the Alton State Hospital formerly clinical director of the Independence (Iowa) State Hospital died in Merion, Pa May 6 aged 64 of cancer

Hambley, Thomas J, Ironwood Mich, College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1898 died in the Grand View Hospital April 23 aged 92

Hanna, John James ⊕ Glen Rose Texas Fort Worth School of Medicine Medical Department of Fort Worth University 1899 member of the American Academy of General Practice past-president of the Johnson County Medical Society and the Panhandle District Medical Society died May 3 aged 80 of cerebral thrombosis

Harper, Lamar Blewett ⊕ Lieut Commander U S Navy retired, Yuma, Ariz. George Washington University School of Medicine, Washington D C, 1936 certified by the National Board of Medical Examiners specialist certified by the American Board of Ophthalmology member of the California Medical Association entered the U S Navy in 1938 and retired Jan 1 1946 died May 2 aged 43

Harris, Lester J ⊕ Jackson Mich Ohio Medical University Columbus 1896 served as president and treasurer of the Jackson County Medical Society, from 1938 to 1952 president of the Security Savings and Loan Association and since 1952 chairman of the board on the staff of the W A Foote Memorial Hospital where he died April 26 aged 84 of myocardial infarction

Hartley, Everett Charles ⊕ St Paul University of Minnesota Medical School, Minneapolis, 1918 clinical assistant professor of obstetrics and gynecology at his alma mater specialist certified by the American Board of Obstetrics and Gynecology member of the Central Association of Obstetricians and Gynecologists served in France during World War I on the staff of the Bethesda and St Joseph's hospitals and the Charles T Miller Hospital where he died May 1, aged 65 of ruptured aneurysm of the splenic artery

Hasbrouck, Edwin Marble, Washington D C Georgetown University School of Medicine Washington 1895 died May 25 aged 90

Haumeder, Hans ⊕ Oakland Calif Medizinische Fakultat der Universitat, Vienna Austria, 1914 specialist certified by the American Board of Internal Medicine served on the staffs of St Joseph's Hospital in New Hampton Iowa the Herrick Memorial Hospital in Berkeley and the Permanente Foundation Hospital died April 27 aged 65 of acute myocardial infarction

Hawley, Darrell Bertrand ⊕ Los Angeles, University of California School of Medicine San Francisco 1934 member of the American Society of Anesthesiologists on the staff of Queen of the Angels Hospital died May 4 aged 66 of cancer of the gastrointestinal tract

Haworth, Morris Wells, Sacramento Calif Barnes Medical College St Louis 1901 an associate member of the American Medical Association died in the Mercy Hospital May 3 aged 80 of aneurysm of the abdominal aorta

Herman, Harold ⊕ New York City Columbia University College of Physicians and Surgeons New York City 1917 specialist certified by the American Board of Pediatrics member of the American Academy of Pediatrics died April 13 aged 60 of bronchopneumonia

Herrick, Van Buren ⊕ Worcester Mass University of Vermont College of Medicine Burlington 1896 died in the Worcester City Hospital April 15 aged 85

Hoffman, William, Lynn Mass Middlesex University School of Medicine Waltham 1942 member of the Massachusetts Medical Society and the American Academy of General Practice on the staff of the Union Hospital died in the Beth Israel Hospital Boston April 30 aged 38

Honig, Leopold, New York City Medizinische Fakultat der Universitat Vienna Austria 1913 died in Vienna Austria March 6 aged 69

Howard, Byron Lorenzo, Detroit Detroit College of Medicine and Surgery, 1919, on the staffs of the Providence Hospital and the Detroit Memorial Hospital where he died April 10 aged 60 of coronary thrombosis

Hower, Heister Vanderslice, Berwick Pa College of Physicians and Surgeons Baltimore 1887 past-president of the Columbia County Medical Society an associate member of the American Medical Association veteran of World War I on the staff of the Berwick Hospital died April 16 aged 92

Hundley, Preston Garnett ⊕ Lynchburg Va University of Maryland School of Medicine Baltimore 1909 also a graduate in pharmacy, served on the staffs of the Guggenheimer Memorial and Lynchburg General hospitals died April 25 aged 76 of leukemia

FOREIGN LETTERS

AUSTRIA

Ulcer Carcinoma —At the meeting of the Society of Physicians in Vienna on May 4, Dr G H Marcus stated that an estimation of the frequency of malignant degeneration in gastric ulcers cannot be made easily because of certain difficulties in terminology Between 1953 and 1955 he observed 48 such cases among 368 patients with carcinoma of the stomach and 221 patients with originally benign gastric ulcers Twenty-five of these were confirmed by microscopic examination, and in the other 23 the presence of an ulcer-carcinoma was highly probable according to the clinical and roentgenological findings The ulcer-carcinomas thus accounted for 7 to 13% of the carcinomas of the stomach The rate for probability of malignant degeneration of benign gastric ulcers is between 9 and 17% The diagnosis of the initial malignancy is difficult, if not impossible Differentiation between benign ulcers and initial carcinomas is sometimes impossible even with the aid of clinical and laboratory studies, gastroscopy, and roentgenograms Surgical treatment of gastric ulcers is, therefore, recommended, particularly for patients with a familial history of cancer and for patients of the age at which cancer may be suspected, provided that internal treatment for several weeks does not result in a complete and indisputable cure

Gastric Carcinoma Following Operation —At the same meeting Dr P Huber said that the development of gastric carcinoma following operation is not so rare as had been assumed This is not surprising if one considers the high incidence of carcinoma of the stomach and the large number of patients operated on for ulcers every year These carcinomas are frequently not diagnosed until too late for lifesaving measures to be applied There is also the question whether the coincidence is incidental or whether there may be a cause-and-effect relationship in some patients Such a relationship could be considered (1) in cases of primary erroneous diagnosis, when the original ulcer was not benign but carcinomatous, (2) in cases of carcinomatous degeneration of recurrent ulcers or anastomotic ulcers after operation for gastric ulcer, and (3) when the gastrectomy creates conditions that predispose to the development of carcinoma The last possibility is entirely theoretical Early diagnosis and thereby improved results of treatment could be obtained if it is realized that any ulcer crater revealed in a roentgenogram may represent a carcinoma Close cooperation between internist and surgeon concerning indications may be helpful, and, finally, the attention of patients operated on for gastric ulcer should be directed to the fact that persistent symptoms after resection are not normal and must have definite causes, which must be carefully sought

Surgical Treatment of Postoperative Peptic Ulcer —At the same meeting, Dr R Oppolzer said that, with regard to the incidence of postgastrectomy (Billroth 2) peptic ulcer, American and European statistics show a difference varying from 0 5% to 8% Postoperative peptic ulcer may occur in as high as 96% of patients after resection of a duodenal ulcer After gastroenterostomy for duodenal ulcer the incidence varies from 4 to 30%, after exclusion gastrectomy the rate varies from 6 to 23%, and after pylorectomy (Billroth 1) from 0 9 to 3 5% Radical resection was associated with a high mortality rate Vagotomy today is a routine procedure in patients with postoperative peptic ulcer Highly satisfactory results are obtained and operative mortality is low, but only in patients with postoperative peptic ulcer after resection After gastroenterostomy, major resection should be performed with anastomosis according to Billroth 2

Surgical Treatment of Peptic Ulcer —At the same meeting, Dr G Salzer reported that, in a series of 2,488 patients with peptic ulcers who were operated on in the last 23 years, 86% were followed up Conclusive evaluation of the prognosis of surgical treatment of patients with peptic ulcers can be made, since in the period considered the indications for operation of uncomplicated ulcer have remained unchanged The recent, untreated ulcer should be treated medically, and only ulcers that are refractory to such treatment and repeatedly recurring ulcers provide indications for surgical treatment Follow-up results were classified into four groups (1) complete freedom from symptoms, (2) temporary minor symptoms but full ability to work, (3) more frequent and more severe complaints with notable reduction of capacity to work, and (4) severe complaints associated with permanent disability Follow-up examinations showed that 88% of the patients who underwent resection belong to group 1, 9% to group 2, 2 7% to group 3, and 0 3% to group 4 Thus, only 3% were not fully employed Follow-up examinations showed that the primary mortality as well as the postoperative complaints was increasing in those who had the disease more than five years After this time, healing may no longer be expected from conservative treatment. The speaker advised operation for patients with an uncomplicated ulcer of five or six years' duration in whom there are repeated recurrences This should prevent massive hemorrhage and perforation—complications associated with a high mortality

BRAZIL

Q Fever —The results of investigation concerning Q fever in cattle ranchers, dairy workers, and cattle of the state of São Paulo are reported by Dr Luiz Augusto Ribeiro do Valle and his co-workers in *Arguivos da Faculdade de higiene e saude publica da Universidade de São Paulo* They found that (1) the specific complement-fixation tests in 65 of 71 cattle ranchers or dairy workers were negative, one was anticomplementary, and 5 were positive (2 at a titer of 1 8 and 3 at a titer of 1 16), (2) a second test of 20 of the dairy workers showed no significant difference from the first examination when performed 45 days later, a similar result was obtained in the study of 2 ranchmen when examined a second time after an interval of about nine months, (3) serum from 171 cows was negative in 131, anticomplementary in 16, and positive in 24 (16 at a titer of 1 16, 5 at a titer of 1 32, 2 at a titer of 1 64, and one at a titer of 1 256), (4) two heifers that had positive complement fixation at titers of 1 32 and 1 64 showed a drop in titer about two months later, to 1 4 and 1 32 respectively, while the tests performed with serum from 12 other animals of the same herd, negative in the first test, did not show significantly different results five months later, (5) attempts to isolate Coxiella burnetti from two samples of blood, one of milk, and one of placenta from cows of two herds failed, and (6) of 26 serums from cows recently imported from the Netherlands and Great Britain, 18 were negative, 2 anticomplementary, and 6 positive (5 at a titer of 1 16 and one at a titer of 1 32)

Cardiac Surgery —A new method for the bypass of the right side of the heart and left ventricle and total bypass of the heart was devised by Dr Hugo J Felipozzi and his co-workers, who

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The reports in these letters are contributed by regular correspondents in the various foreign countries used a Sigma motor pumping apparatus and utilized the patient's lungs as oxygenator of the blood. They presented a paper before the Associação Paulista de Medicina, reporting two cases in which this method was used. The bypass of the right side of the heart was accomplished by pumping the blood from both venae cavae into one of the branches of the left pulmonary artery. By using this technique it was possible to operate on the pulmonary valve and the right ventricular cavity under direct vision. This technique was applied without difficulties even in the presence of auricular septal defects experimentally created. After exhaustive and encouraging experiments with animals including simultaneous graphic recording of the pressure changes in the pulmonary artery and left auricle and the systemic pressure it was decided to use this method in patients. Two patients with pulmonary stenosis were operated on and the pulmonary valves were easily cut under direct vision.

The bypass of the right side of the heart and the left ventricle was done using two circuits, the first as described for bypassing the right side and the second from the left auricle to the right subclavian artery. This technique makes possible the correction of ventricular septal defects as a single malformation or in association with other defects. The total bypass of the heart was possible with the use of only one lung as oxygenator. As for the other cases, the blood from the venae cavae was pumped into the left pulmonary artery, while the arterialized blood from the left lung was collected from the left pulmonary veins and pumped into the right subclavian artery. This makes it possible to operate on the mitral valve and the auricular septum under direct vision. In all circumstances the output of the apparatus was calculated according to the azygos flow principle. Despite the small output used for the bypass of the right side of the heart, the systemic blood pressure remained at about normal levels. The feasibility and safety of this method were due chiefly to (1) the use of the patient's lung to oxygenate the blood, (2) the application of the azygos flow principle, which permits the use of a small output, and (3) selection of one or two extracorporeal circuits according to the defect to be repaired.

COLOMBIA

Thyroid Function Tests.—Dr. A. Ucros Cuellar has made clinical observations and laboratory tests on 128 patients, 48 of whom had hypothyroidism, 71 euthyroidism, and 9 hyperthyroidism. Eighty-five patients had nodular or diffuse goiter. Tests with radioactive iodine were not made. In the group of patients with hypothyroidism the level of protein-bound iodine in the blood was normal in 59%, low in 32%, and high in 9%. The basal metabolic rate was normal in 70%, low in 26.5%, and high in 3.5%. The amount of cholesterol in the blood was normal in 51.5%, low in 15.5%, and high in 33%. In the group of patients with euthyroidism protein-bound iodine values were normal in 82%, low in 11.5%, and high in 6.5%. The basal metabolic rate was normal in 79%, high in 16%, and low in 5%. Blood cholesterol was normal in 89.8%. In the group of patients with hyperthyroidism the levels of protein-bound iodine were normal in 43% and high in 57%. The basal metabolic rate was normal in 33% and high in 67%. Blood cholesterol was normal in 75% and high in 25%. The author concludes that the basal metabolic rate when determined in ideal conditions is still a very good method for determining thyroid function. The errors in statistics are due to faulty laboratory technique. The technique for determination of levels of protein-bound iodine is difficult. The procedure has as many sources of error as that for the basal metabolic rate. Both procedures have about the same diagnostic value. Cholesterol determination is of little diagnostic value.

Thyrotoxic Crises.—Dr. J. Cortazar, the president of the Sociedad Colombiana de Endocrinologia and director of the Instituto Nacional de Cancerologia, reported three cases of postoperative thyrotoxicosis. The preoperative routine medication consisted of use of cortisone, chlorpromazine, phenobarbital, and adrenal cortex extract (Eschatin). Cortisone acetate was given from the day prior to operation till the fourth postoperative day in doses of 25 mg. three times daily. Chlorpromazine was given four or five times a day in doses of 25 mg. and phenobarbital four times a day in doses of 100 mg. for five days preceding the operation. Eschatin was given intravenously in doses of 20 cc. One injection was given on the day before the operation and another on the day of the operation. The author concluded that (1) thyrotoxic crises are the expression of a general adaptation syndrome due to exhaustion of resistance caused by stress, (2) the administration of corticosteroids in association with other drugs affecting the central nervous system may cause diminution of the oxygen consumption and prevent the occurrence of symptoms, and (3) any operation on a patient with thyrotoxicosis is justified only if it is considered lifesaving. Operation on the thyroid in patients with hyperthyroidism is indicated only after failure of all other methods of treatment, especially after failure of treatment with radioactive iodine.

FRANCE

Atypical Tuberculosis.—A. Jacquelin and his co-workers present two articles on atypical tuberculosis in *La Semaine des hôpitaux de Paris* (32:1253, 1956). In the first the authors stated that patients with such atypical forms of tuberculosis as chronic febrile bacillary states of Burnand's type, Poncet's rheumatism, iridocyclitis, asthma, enterocolitis, and even psychosis are susceptible to "second" infections, possibly frequent, protracted, and recurrent, due either to pyogenic agents, Escherichia coli, micrococci, pneumococci, streptococci, Hemophilus influenzae, or to viruses. The connection between the tuberculous impregnation and such secondary infections can be recognized in some patients by the reappearance or flare-up of an infection, particularly from micrococci, E. coli, or virus, by the effect of the tuberculin test or in the course of tuberculin therapy in which too rapidly increased doses were given. The authors' observations suggest the possible curative effect of fixation abscess, various procedures for pyretotherapy, and cautery on such syndromes.

In the second article the authors state that atypical tuberculosis, streptococcic rheumatic disease, and brucellosis are characterized, after an initial septicemic phase, by a persistence of localized infective foci from which new bacteremic disseminations may arise but which above all create an allergic or even occasionally hyperallergic status responsible for distant manifestations that reveal the deeply hidden and often unrecognized infection. The purely allergic pathogenesis of these manifestations may explain their simple inflammatory characters, the nonspecificity and nonvirulence of their lesions, and the great difficulty of ascribing to them their true origin and the impossibility of obtaining formal, direct, bacteriological evidence. The proof, however, may be indirectly deduced through skin reactions to endoproteins or bacterial exotoxins, focal or syndromic reactions, and the unquestionable effectiveness of therapeutic desensitization.

Treatment of Chronic Rheumatism.—Lavani and his coworkers (*Semaine hôp. Paris* 32:1299, 1956) give critical analysis on the value of cortisone in the long-term treatment of progressive chronic polyarthritis. They studied the therapeutic effect of cortisone, hydrocortisone, and prednisone and concluded that corticotherapy should be reserved for those patients who do not respond to routine treatment and chrysotherapy It, however, appears that prednisone, when given in small doses and possibly alternated with salicylate derivatives, constitutes an unquestionable advance

PERU

Diagnosis of Uterine Cancer —In the first issue of *Ginecologia y obstetricia* (1 58 [no 1] 1955), the new official quarterly bulletin of the Peruvian Society of Obstetrics and Gynecology, Dr Roberto Gordillo Delboy stated that Papanicolaou's method is very helpful in diagnosing uterine cancer when used routinely in unhospitalized patients suffering from diverse gynecologic conditions By using this method the author reached a correct diagnosis in 95 4% of 482 patients In this series 50 women were found by means of biopsy to have cancer, while the cytological study detected cancer in 40 The 10 false negative results plus 12 that were falsely positive gave a figure of 4 6% erroneous diagnoses Since false positive results are usually due to faulty interpretation of the cellular findings, it is likely that with further experience they will be greatly reduced As to the false negative results which are more hazardous, they seem to be related to the complex mechanism of cellular exfoliation and only a few of them can be explained by gross deficiencies in technique The doubtful cases should be checked periodically by studying vaginal smears and biopsy specimens The cytological method is of doubtful value, however, in determining the grade of malignancy

Cervical Carcinoma and Pregnancy —In the same journal (1 29 [no 1] 1955), Drs Samuel Seyhet and J Campos stated that every diagnosis of intraepithelial carcinoma made during gestation is uncertain and it should be fully verified after delivery before any treatment is recommended They performed multiple biopsies of the uterine cervix on a series of 200 women during and shortly after delivery, and, in order to determine whether the changes found were permanent or only associated with the pregnancy, new biopsy specimens were taken 6 and 12 months after delivery in the 50 women in this series who showed histological changes on the first examination In 10 women histological changes quite consistent with carcinoma in situ were found, and in 4 the findings also suggested the infiltration of the corium In 18 women, atypical nuclei were seen, in 20, changes in the cellular stratification and nuclear hyperpigmentation were observed, and, in 29, an increase in the number and size of the nuclei in both the endocervix and the ectocervix was noted Since the permanence of these changes could not be verified by later biopsies, the authors concluded that histological changes seen in the uterine cervix of pregnant women should be regarded as transitory and not malignant Their development seems to arise regardless of the age of the patient or the number of previous pregnancies Other findings observed in the initial biopsy specimens were hypertrophy of the squamous epithelium in 61 women, squamous metaplasia of the endocervix in 43, hyperplasia of the basal layer in 86, decidual changes of the stroma in 21, and edema plus congestion in 120 In most patients these lesions were found to have disappeared or at least diminished in later biopsy specimens, but changes consistent with chronic cervicitis persisted

Institute for Research on Tuberculosis —An institute for research [illegible] tuberculosis and other pulmonary diseases was established [illegible] May 5 at the Hospital-Sanatorio Bravo Chico for tuberculous [illegible] by the School of Medicine of the National University of [illegible] of Lima It will be under the direction of Dr Ovidio [illegible] A special two-story building has been built for it, and its technical equipment will be in charge of some American scientific foundations In addition to research, the institute will cooperate with the school of medicine in teaching medical students

Dr Harry Bakwin Honored —Dr Harry Bakwin, president of the American Academy of Pediatrics, on his visit in Peru, was named honorary fellow of the Peruvian Society of Pediatrics An address of welcome was delivered by Dr Pompeyo Gallardo, president of the society, and the introduction speech was given by Dr C F Kromdieck, president of chapter 9 of the American Academy of Pediatrics

Endometrial Hyperplasia and Carcinoma —Endometrial hyperplasia, as caused by a long-standing and unopposed excess of estrogen, plays an important role in causing endometrial carcinoma according to Dr Juan Wood and his co-workers in *Ginecologia y obstetricia* (1 1 [no 2] 1955) They reviewed 695 reports of endometrial hyperplasia proved by means of biopsy specimens and 174 reports of endometrial carcinoma, and they found that, while the hyperplasia-carcinoma ratio was 17 7 1 in women under 50 years of age, it was 2 1 in women over this age On the other hand, they analyzed 26 reports of patients in whom malignant lesions were found associated with endometrial hyperplasia and showed this association to be 8 5 times as frequent after the onset of the menopause as before it In view of the fact that the incidence of cancer is four times as great after the menopause as before it, the ratio for such an association is reduced to 4 5 1 In studying the age of the patients when the diagnosis of malignancy was made, it was shown that, in the group of patients showing both adenomatous hyperplasia and adenocarcinoma, the average age was 48, whereas the average age in patients with adenocystic hyperplasia plus adenocarcinoma was 58

In the group of patients with adenocarcinoma associated with both types of hyperplasia, the average age was 52 The authors believe that their findings indicate that malignant degeneration occurs more frequently and earlier when adenomatous hyperplasia preexists They therefore advise hysterectomy as a prophylactic measure whenever endometrial hyperplasia is found in the postmenopausal period Treatment with x-rays or radium should be resorted to only when there are serious contraindications to operation or the patient refuses operation In such patients periodic cytological studies and biopsies are essential Of the 26 patients with both kinds of lesions, 6 were found to have the adenocystic type of hyperplasia plus adenocarcinoma, 6 showed the association of the adenomatous type with adenocarcinoma, 7 had both types of hyperplasia plus adenocarcinoma, and in the remaining 7 gradual conversion of adenocystic into adenomatous lesions and then into adenocarcinoma in periods of one to four years was observed These findings indicate the existence of an endometrial carcinoma in situ

UNITED KINGDOM

Rheumatoid Arthritis in Children —Dr F Bywaters and his co-workers have compared the effectiveness of cortisone and aspirin in the treatment of rheumatoid arthritis in children Thirteen of 25 children with the condition were given a maintenance dose of 50 to 100 mg of cortisone daily, and the rest were given 0.2 to 0 4 gm of aspirin daily, treatment being given in 12-week courses The criterion of diagnosis was arthritis of the rheumatoid type, involving two or more joints Assessment of improvement was based on functional capacity, the activity of the disease, the strength of the grip, a timing test while using hand-operated pegs or walking, tenderness of the joint, range of movement, sedimentation rate, hemoglobin level, and radiological appearances Over the course of a year's treatment, there was little essential difference between the two groups in any of the aspects observed. The mean figure after a year was slightly better in most respects in the group treated with aspirin. The effects of cortisone and aspirin paralleled those in the adult group of patients with rheumatoid arthritis reported by the Medical Research Council's committee in 1955

Aminometradine in Treatment of Congestive Heart Failure—The effect of a new orally given diuretic, aminometradine (Mictine, 1-allyl-3-ethyl-6-aminotetrahydropyrimidinedione) which is one of a series of substituted aminouracils was examined by Platts and Hanley (*Brit M J* 1 1078 1956) The effect of the drug on the flow of urine and excretion of electrolytes was studied in 20 patients with congestive heart failure and in 2 patients with heart disease but without edema all of whom ingested 1 000 to 1,500 ml of fluid and 0.5 to 5 gm of salt daily They were weighed each day and all urine collected over 24-hour periods The volume and electrolyte content of the urine were measured during a control period Most of the patients received 400 mg of aminometradine daily and, if this did not cause a satisfactory diuresis the dose was increased to 800 mg Treatment ranged from 2 to 11 days Two patients with congestive heart failure received alternate doses of aminometradine and mersalyl one day without any treatment being allowed after use of each diuretic

The chief alteration in the acid-base composition of the urine caused by use of aminometradine consisted of an increased excretion of sodium and chloride ions The excretion of potassium ions also rose but not to such an extent as that of the sodium ions The increased output of urine and increased excretion of sodium and chloride resulting from the administration of 400 to 800 mg of aminometradine were somewhat less than those produced by an intramuscular injection of 2 ml of mersalyl subsequently administered to patients who had received aminometradine therapy Use of aminometradine alone produced a good therapeutic effect in eight patients with congestive heart failure fairly good response in five and a negligible result in five It presumably inhibits reabsorption of sodium and chloride by the renal tubules and the increased flow of urine is probably an osmotic diuresis occasioned by increased excretion of salt The observations that maximum diuresis from aminometradine often does not develop until the third or fourth day of administration and that the diuresis lasts more than 24 hours suggest that a single dose of 400 mg is not completely excreted in 24 hours Platts and Hanley conclude that it is unlikely that aminometradine will supplant the mercurial diuretics in the treatment of severe congestive heart failure The only toxic effects were nausea and vomiting

Faith Healing—Two years ago a commission on divine healing set up by the archbishops of Canterbury and York asked the British Medical Association whether there was any evidence that improvement or cure of disease or accelerated recovery from illness can result from spiritual ministrations The findings of the B M A committee (Divine Healing and Cooperation Between Doctors and Clergy British Medical Association, 1956) state that no evidence was found that there is any special type of illness cured solely by spiritual healing that cannot be cured by medical methods not involving such claims The committee often found that when cures claimed for spiritual healing were investigated the patient was at the same time receiving medical treatment, although this fact was not revealed by those claiming the "cures" It does acknowledge however that the value of religious ministration in the treatment of various disorders is great Many of the cures effected by unorthodox methods including faith healing are mainly due to suggestion, which is more likely to be effective if it has a religious background. In cases of alleged spontaneous healing full details of diagnosis were requested, with special emphasis on the nature of the case, i.e., whether organic with corroborative laboratory tests mental, or psychosomatic Many of the case histories would require substantiation before they could be regarded as evidence that anything more than what might be called normal healing had occurred

The cure of disease is a relative matter Freedom from symptoms or a remission is often thought to be a "cure" by the layman whereas the medical standard is restoration of structure and physiological function. Disorders of psychological origin may be cured by methods affecting the mind and emotional state and may include spiritual healing but the committee considers that it is undesirable and even dangerous to apply spiritual methods of healing without a knowledge of the nature of the disease from which the patient is suffering. Most of the "cures" of organic diseases claimed for spiritual healing may be classed as mistaken diagnosis or prognosis alleviation or remission, spontaneous cure or the result of combined spiritual and medical treatment Thus some cases diagnosed as epilepsy are really hysteria. Physicians often encounter illness that, on the basis of previous experience should prove fatal but that appears to resolve unexpectedly without medical treatment. Some cancers have been reported to behave in this way If such cases were treated by faith healing, they would be considered as "cures" When all the above possibilities are considered, it leaves little room for miraculous cures of organic disease by the methods of spiritual healing In any event, spontaneous or unexpected cures that cannot be explained are rare

Road Accidents—The Ergonomics Research Society met in Bristol in April to discuss the causes of road accidents which cost Great Britain 210 million dollars 5 000 deaths and 250 000 casualties annually The problem of night glare was discussed On the Continent colored lights are used at the expense of reduced visibility The Anglo-American aim is to have as large a range of vision as possible but with the light directed away from the eyes of the oncoming driver Glare is mostly due to badly aimed light beams 20% of the cars in Great Britain are badly maintained in this respect, as compared with 2% in Washington, D C., where inspection of headlights is compulsory Polarized windscreens and glasses have the disadvantage that they reduce vision too much. Prof G Drew of Bristol described tests on a simulated car journey by subjects after taking from 0.2 to 0 65 gm of alcohol per kilogram of body weight Steering error speed, and probable accident rate increased with rising blood alcohol Prof L. Goldberg of Stockholm said that in Sweden 8.8 of the men over 25 years old and 4 or 5% of all drivers given sentences were problem drinkers In a five-month investigation in Sweden it was found that in traffic accidents occurring on Saturdays 70% of drivers involved had alcohol in their blood and 33% were problem drinkers Of deaths among motorcyclists 80% were due to head injury More information is needed on the mechanics of concussion Protective crash helmets have diminished the risk of head injury and the number of deaths among motorcyclists Prof R. McFarland of Boston said that in the United States in fatal car accidents and in accidents in which the car overturned, one or more doors opened in 75% of the cases and one occupant in three was completely ejected. One-third of those ejected died. Ejection more than doubles the chance of serious injury or death

Medical Ethics—At a recent meeting the central ethical committee of the British Medical Association considered that with few exceptions all physicians appearing on radio or television should be anonymous It was conceded that in exceptional circumstances this rule might be waived, as for example when a physician discussed medicopolitical matters of national interest The committee believes that anonymity should be preserved in all branches of medicine There is a type of program in which members of the public discuss clinical details of cases and receive comments from a panel that includes physicians The committee believes that such programs could have serious consequences and be detrimental to the patient and public An inquiry was received by the committee on the ethics of controlled therapeutic trials In the case under review it was proposed to test the effect of progesterone implants in women who had had repeated miscarriages, by treating alternate patients with implants of the test substance or an inert compound Under the conditions of a controlled trial, it would not be possible to explain the nature of the investigation to the patient In law and medical ethics, a physician must not treat a patient without his or her consent and the risks and nature of any treatment must be fully explained before obtaining consent To conduct a controlled clinical trial without explaining the nature of the investigation to the patient would therefore be both illegal and unethical The committee advised that a protest should be made by physicians in a certain locality where the ambulance authority had sometimes informed the police of the diagnosis of some patients sent to the hospital by a physician

Influence of Adrenocortical Hormones on Gastric Secretion—The influence of the adrenal cortex on gastric secretion has been studied by Dr James Kyle and his co-workers (*Lancet* 1 664, 1956) Gastric secretion in adrenal cortical hyperfunction (Cushing's syndrome) was examined in 11 patients, 8 before and 7 after surgical treatment In six the operation was removal of 0 9 of one adrenal and all of the other, and in one patient it was limited to partial removal of a gland containing a cortical adenoma A satisfactory remission of the syndrome was obtained in all patients Before operation the free-acid curve of a fractional test meal was higher than normal, the mean highest concentration being 61 units After adrenalectomy the average free-acid curve was near the lower limit of normal, with a mean highest concentration of 25 units A controlled investigation of the relation between gastric secretion and the excretion of 17-hydroxycorticoids, which was thought to be a more specific measure of adrenocortical function, was then carried out on 26 patients and 8 normal subjects The highest concentration of acid obtained after a test meal was plotted against the 24-hour excretion of 17-hydroxycorticoids Most of those with a high excretion of 17-hydroxycorticoids also had a high concentration of gastric acid Hypersecretion was also produced by the administration of corticotropin or cortisone In view of these results it is surprising that duodenal ulcers do not appear to have been observed in patients with adrenal cortical hyperfunction

Artificial Insemination and Paraplegia—A case of successful impregnation by the spermatozoa of a paraplegic with a complete spinal syndrome at the T-8 segment is reported by Dr R Spira (*Lancet* 1 670, 1956) Ejaculation was obtained by injecting 0 2 mg of neostigmine intrathecally at the L-4 and L-5 vertebral interspace, the injection being made slowly after mixing the contents of the syringe several times with the cerebrospinal fluid An hour later erection followed by the ejaculation of spermatic fluid occurred After improving the spermatozoa count by giving 25 mg of testosterone daily for 14 days and 1,000 units of gonadotropin daily for four weeks, the injection of neostigmine was repeated and the ejaculate used for artificial insemination Pregnancy and the delivery of a normal child resulted Paternity was confirmed, as far as it was possible to do so, by blood tests The neostigmine presumably acts on the undamaged spinal centers in the lumbar cord, below the level of the lesion, which control erection and ejaculation

Synthetic Oxytocin—Oxytocin, which was synthesized by du Vigneaud and his co-workers in 1953, is a complex polypeptide formed from tyrosine, isoleucine, cystine, asparagin, glutamine, proline, leucine, and glycine Animal assays indicate that it is equal in potency to the international standard preparations of posterior pituitary powder Clinical trials with the synthetic material were made by Bainbridge and his co-workers (*Brit M J* 1 1133, 1956) In an antepartum investigation in which an electrical pressure transducer was used to record pressure in the cervical canal, the effects produced by natural and synthetic oxytocin were qualitatively similar The synthetic hormone was also assayed against the natural product It was used in intravenous infusions given for uterine inertia, the contractility of the uterus being recorded continuously with an electric tocograph, and in patients post partum on the second and third days after delivery, activity being measured by the time taken for the tocograph tracing to return to normal No qualitative or quantitative differences between the two compounds were demonstrated, nor were any side-effects encountered from the doses given Drs H and W Francis also examined the effect of a continuous intravenous drip on the synthetic hormone in 31 patients near term or in labor, using a Lorand tocograph in the first and second stages of labor (*Brit M J* 1 1136, 1956) In 17 the action was compared with that of the natural product by alternate administration for 20 minute periods The actions of synthetic and natural oxytocin were indistinguishable The synthetic product had slight pressor activity, but this was not sufficient to contraindicate its therapeutic use

Smoking and Lung Cancer—Prof Bradford Hill and Dr R Doll of the research unit of the Medical Research Council, who have carried out most of the epidemiological work on the association between tobacco smoking and lung cancer, have answered 31 questions on the subject submitted to them by the editor of the *British Medical Journal* They state that, even allowing for improved methods of diagnosis, cancer of the lung has increased in the last 10 years to a much greater extent than any other form of cancer In reply to the question whether statistical evidence proves that cigarette smoking directly causes cancer of the lung, they reply in the negative, but they believe that such a relationship is likely and that the risk of dying from lung cancer is directly proportional to the amount smoked, although it is agreed that the disease occurs also in nonsmokers It is estimated that about 9% of 25-year-old men who smoke 25 to 50 cigarettes daily might be expected to die of lung cancer before they reach the age of 75 The chance of dying of lung cancer is diminished in a heavy smoker if he gives up the habit in middle age, or if he smokes a pipe only Some protection seems to be afforded by cigarette holders or filter tips The smoking of hand-rolled cigarettes affords no protection There is no evidence that the use of a flint-and fluid lighter increases the risk The possible role of atmospheric pollution in causing lung cancer is unknown The disease occurs twice as frequently in the town dwellers as in those living in rural areas, but they also smoke more There is no clear evidence that exhaust gases from vehicles, either diesel oil or gasoline driven, play a part, because taxi drivers, truck drivers, garage hands, and traffic police show no increased incidence of cancer of the lung For countries with adequate statistics, there is little correlation between mortality from lung cancer and total tobacco consumption, but there is a close association in 10 countries when the consumption of cigarettes 20 years ago is related to the present death rate from lung cancer, with the notable exception of the United States, where the death rate is relatively low In its editorial comment, the *British Medical Journal* said that, if cigarettes only killed outright like an automobile accident, the connection between cancer and smoking would be brought home to the public The key persons in public propaganda against smoking are the general practitioner, the family physician, the school doctor, and the school teacher It is essential to bring home to the youth of today the great dangers to life and health in smoking cigarettes

CORRESPONDENCE

SYMBOLIC SHORTHAND FOR REGISTRATION AND FILING OF MEDICAL INFORMATION

To the Editor —In view of the unprecedented increase in the volume of medical research during the last few decades, it has become increasingly more difficult to keep up with current progress, even in a limited field I was first confronted with this problem as a medical student when I realized the impossibility of taking adequate lecture notes about what had just been said while listening to what was being said The only way I could cope with this difficulty was by substituting self-explanatory simple symbols for long technical words or complex descriptions of procedures During the subsequent 30 years this set of symbols developed into a system of shorthand for medical subjects It has been of considerable assistance to me in taking notes during scientific congresses and in annotating the literature on stress and endocrinology (the principal subjects of research in our institute) for subsequent filing by office personnel not medically trained It is this timesaving device that made it possible for us to prepare a detailed subject index for the 250,000 reprints and books that constitute our endocrinological research library The indexing system itself has never been published and since I feel that it may be of some assistance to medical students, physicians and research men alike I want to present at least an outline of it to the profession In doing so I shall take my examples mainly from the field of endocrinology and stress research with which I am most familiar, but naturally the same system can also be applied to other specialties and indeed to sciences other than medicine

The first step is to establish an order of precedence, or the sequence in which topics are to be mentioned This must depend upon the field of personal interest In our library the material is arranged in the following sequence (1) endocrines, (2) nonendocrine organs (3) connective-tissue reactions (4) infections and serologic reactions, (5) tumors, (6) metabolism, and (7) various topics not specifically mentioned above While this is only a rough outline it is obvious that if every possible subject has a well-defined precedence rating" it can be found, even within the most voluminous file, just as easily as any one among the 600,000 entries is located in Webster's New International Dictionary by any reader familiar with the "order of precedence" in the English alphabet Indeed, just as even words not yet coined have a place (and only one place) foreseen for them in the dictionary so discoveries to be made in the future will fit quite naturally into a well-conceived system of scientific literature, in consonance with its order of precedence

All possible medical subjects can be subdivided into static and dynamic observations The former are purely descriptive (e g, the normal morphology or chemical composition of an organ), while the latter are concerned with the response of a target to an agent (e g, the response of a tumor to x-rays) The systematic registration of static observations presupposes only an order of precedence, while the manifold interactions often complex between targets and agents necessitate a more refined lexicographic procedure The system we have developed employs self-explanatory symbols and simple abbreviations These can rapidly be jotted down in a notebook during a lecture or on the corner of a printed article we happen to read and they are much easier to remember than the customary numerical library codes In our institute journals reprints, books, and abstract cards thus annotated by my associates or by myself, are then handed to office personnel These employees (though not medically trained) have no difficulty in decoding our shorthand information sufficiently to type it out on handy, small index cards (height, 1¼ in width, 5 in), which are then filed (according to the order of precedence) in convenient flat drawers This provides an expandable subject index to the entire bibliographic system

After a publication has been selected for indexing, it receives an accession number and is filed according to the author(s) by office personnel Here I should merely like to give a few examples of the type of annotation the medically qualified person must then make himself on this entry It will be seen that, with an adequate system of symbolic shorthand it takes only a minimum of time and effort to jot down the symbols that enable an office assistant to index the material so that it can then always be easily located For example an article published by Smith in 1956 has received the accession number 27001 It contains purely static information concerning the histological structure of the chromaffin cells in the adrenals of normal human subjects Only the scientifically qualified person can judge that this is the topic of the paper hence he must annotate the article by jotting down on its corner (in handwriting) the remark

Adr/Hi/Chromaffin cells/Man

This is then clearly typed out on an index card by the bibliographic assistant as follows

Adr/Hi/Chromaffin cells/Man
Smith 27001/56

It is easy to keep in mind such abbreviations as "Adr and "Hi," because they are reminiscent of adrenals and histology while the two numerals after the accession number are a convenient indication of the year in which the paper appeared The reprint itself can then be placed on a shelf in the simple numerical order of its accession number and is henceforth readily located, either through the alphabetic author file (if we look for works by Smith) or through the subject file (if literature on the histology of chromaffin cells is required)

To exemplify the annotation of a simple dynamic observation, let us consider an article by Smith and Klein published in 1956 and given the accession number 33001 It deals with morphological changes obtained in the adrenals of rats (R) by treatment with corticotropin (ACTH) Here we have a single simple target influenced by a single simple agent. In our system the target is always mentioned first hence the scientist will annotate

Adr ← ACTH/R

The assistant will write

Adr ← ACTH /R
Smith and Klein 33001/56

Now take a paper that describes the effect of corticotropin upon the basal metabolic rate (BMR) the erythrocyte sedimentation rate (ESR) and the temperature (Temp) in normal human beings Here we have several single targets influenced by a single simple agent, and the most timesaving way to annotate this would be

$$\left.\begin{array}{l}\text{BMR}\\ \text{ESR}\\ \text{Temp}\end{array}\right] \leftarrow \text{ACTH}/\text{R}$$

The assistant will then have to prepare three subject cards so that each observation may be individually registered in the particular place foreseen for it according to the order of precedence in the drawers of the file These cards will read

BMR ← ACTH /Man
Johnson 31074/56

ESR ← ACTH /Man
Johnson 31074/56

Temp ← ACTH /Man
Johnson 31074/56

An example of a single simple target being influenced by several simple agents is a paper describing the effect upon the hamster's adrenals of treatment with corticotropin (ACTH), somatotropin (STH), thyrotropin (TTH), a gonadotropin (GTH) mixture [containing both follicle-stimulating hormone (FSH) and luteinizing hormone (LH)], and luteotropin (LTH) All this is described in the same article, but we are not dealing with a compound treatment, the effect of each hormone was examined on separate groups of animals It would seem that a very extensive description of the paper (at least as much as I just said about it) would have to be written out by the scientist to permit filing of all this information by an assistant nontechnically trained Actually, what the scientist should write is only

$$\mathrm{Adr} \leftarrow \left[\begin{array}{l} \mathrm{ACTH} \\ \mathrm{STH} \\ \mathrm{TTH} \\ \mathrm{GTH(FSH+LH)} \\ \mathrm{LTH} \end{array}\right. /\mathrm{Hamster}$$

This will enable the assistant to break down the information into five cards this way, to show that actually we are dealing with five separate experiments

Adr ← ACTH /Hamster
Scott 23123/48

Adr ← STH /Hamster
Scott 23123/48

Adr ← TTH /Hamster
Scott 23123/48

Adr ← GTH (FSH+LH) /Hamster
Scott 23123/48

Adr ← LTH /Hamster
Scott 23123/48

As shown by the example of gonadotropin, explanatory remarks can be given in parentheses after the symbol of the agent, without changing for precedence order Of course, the same is true whenever explanations are necessary concerning special features of the target It is inadvisable to burden our memory by establishing abbreviations for comparatively uncommon topics For instance, in our file, such common laboratory animals is the rat (R), guinea pig (gp), or mouse (M), are represented by abbreviations, but the less commonly used hamster is not

Frequently, the same paper may deal with several targets as affected by several agents For instance, in the same communication there may be evidence concerning the effect of heat and of anoxia on both the adrenals and the thyroid of a guinea pig Here we have several single targets affected by several single agents Again, the handwritten annotation may be quite simple

$$\left.\begin{array}{l} \mathrm{Adr} \\ \mathrm{Tr} \end{array}\right] \leftarrow \left[\begin{array}{l} \mathrm{Temp}\uparrow \\ O_2\downarrow \end{array}\right. /\mathrm{gp}$$

However, it will require four separate typed cards to file the evidence properly according to the precedence order of each entry, like this

Adr ← Temp↑ /Gp
Miller 27944/50

Adr ← O_2↓/Gp
Miller 27944/50

Tr ← Temp↑ /Gp
Miller 27944/50

Tr ← O_2↓/Gp
Miller 27944/50

The symbols for thyroid (Tr), for a rise in the surrounding temperature (Temp↑), or for hypoxia (O↓), are all rather self explanatory

We may now turn to the case of a single compound target influenced by a single simple agent This is exemplified by a paper that describes the changes in the glucose (Glu) content in (<) the blood (B) that occur after treatment with adrenaline (A) in the mouse (M) It may simply be annotated

$$\mathrm{Glu} < \mathrm{B} \leftarrow \mathrm{A} / \mathrm{M}$$

Data can be typed on a filing card in the same manner (except that author, accession number, and year of the publication will also be listed in the usual manner)

Frequently, both the target and the agent are complex, for example, when the blood sugar is examined in adrenalectomized (Adr-X) mice, as affected by simultaneous treatment with adrenaline and cortisone (CON) This can be annotated

$$\mathrm{Glu} < \mathrm{B} \leftarrow \mathrm{Adr\text{-}X} + \mathrm{A} + \mathrm{CON} / \mathrm{M}$$

The same system of symbolic shorthand can also be applied to the most complex targets For example, assume that aldosterone (Aldo) production in the adrenals is examined after the addition of desoxycorticosterone (DOC) as a substrate to rat adrenal tissue in vitro and that the adrenals (whose ability of converting desoxycorticosterone into aldosterone is thus examined) have come from rats that had previously been treated with subcutaneous injections of corticotropin All this can be concisely and rather unequivocally written in a single line of symbolic shorthand

$$[\mathrm{Aldo} < \mathrm{Adr}\ (\text{in vitro}) \leftarrow \mathrm{DOC}] \leftarrow \mathrm{ACTH}\ (\mathrm{s\ c}) / \mathrm{R}$$

If, on the other hand, a target is influenced by a complex agent (the preparation of which is actually part of the experiment) and even if this agent is but one component in a compound treatment procedure, the system is still readily applicable As an extreme case, let us consider a publication that deals with the effect of an antikidney serum upon the renal tissue of partially nephrectomized rats kept on a high sodium-chloride diet The serum was prepared by the Masugi method, that is, rabbit kidney-tissue was injected into ducks and induced in the blood of the latter the appearance of nephrotoxic antibodies specifically directed against kidney-tissue It may seem virtually impossible to explain such a complex experiment to an assistant not medically trained Actually, a one-line annotation in symbolic shorthand describes the entire experimental arrangement

$$[\mathrm{Ky} \leftarrow [\mathrm{B}(\mathrm{Duck}) \leftarrow \mathrm{Ky}(\mathrm{Rb})] + \mathrm{Ky\text{-}xp} + \mathrm{NaCl}\uparrow / \mathrm{R}$$

The abbreviations that we have not yet encountered [kidney (Ky), rabbit (Rb), partial nephrectomy (Ky xp), and excess administration of sodium chloride (Na Cl↑)] are all quite self-explanatory

What helped us in the shorthand coding of the two last-mentioned procedures was the use of square brackets In the case of targets or agents, which are themselves the result of an experimental operation, the method of their preparation can thus be described with the usual shorthand symbols, but is a separate unit The square brackets indicate that the final product is one, though its preparation may necessitate a complex procedure Any number of agents (whether complex or simple) can then be listed in the usual precedence order, connecting them with each other by plus signs (+) This is important, because in our system the action of several agents on one target would be filed on one card, as a single shorthand expression, while, if the effect of an agent upon several targets is considered, a separate card would have to be prepared for each target structure

It should be mentioned in closing that this system was devised merely for the classification of observations it is not meant to indicate the direction of the changes observed However if it is desired to register such additional information this can easily be done with arrows placed just before the target Thus ↑Glu <B would indicate hyperglycemia, ↓Glu <B hypoglycemia and ↑↓Glu <B an initial rise followed by a drop in the blood sugar level

Of course everybody who uses our system will wish to modify it somewhat to fit his personal interests But the experience of many years has shown that the basic principles of this symbolic shorthand are readily adjusted to the problems and economic means of the medical student, the practicing physician the specialized research worker or the well-endowed large institutional library Indeed perhaps the time has come when for certain purposes we may have to develop a special script for medical topics, a set of shorthand symbols that correspond to the structure formulas and equations of chemistry the notes of music and the symbols of algebra

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CURRENT MANAGEMENT OF HYPERTRICHOSIS

To the Editor —This letter is being written as a plea to physicians and fellow dermatologists to give more thought to the management of hypertrichosis Discussion with many dermatologists reveals that there has been a tendency to dismiss the problem as a matter of little consequence, particularly if there is no endocrine abnormality, or to rationalize that the tedious and prolonged course of therapy required for hair removal does not justify the time spent on these cases To dismiss as a cosmetic problem the tendency toward excessive hair growth, particularly on the face of a woman, is as illogical as it is to dismiss the problem of acne as an inconsequential matter Surely the patient with hypertrichosis is often psychologically more upset than the one with acne since there is the implication of masculinization and all its accompanying connotations Many such patients have remarked that they felt they were developing into freaks Undoubtedly the sensitive patient feels very strongly about the matter and is more than willing to endure any discomfort associated with the procedure of hair removal It is also obvious that the "hands off" attitude adopted by most physicians has shifted treatment (which most patients are determined to get) to a group of individuals with little or no medical background and, for the most part with little insight into the total problem

It is unfortunately true that very few states have any licensing requirements and an individual has only to buy a machine to set himself up as an electrologist Most of these individuals operate completely without medical supervision or control Many of them advertise in the most flagrant manner and claim fantastic results (for example painless as many as 1 600 hairs per hour or no recurrence") It should be pointed out that the procedure is neither painless (although by injection of procaine the discomfort can to a large extent be reduced) nor can more than about 150 to 300 hairs be removed per hour if the technique is to be careful and skillful The recurrence rate is probably in the neighborhood of 20 to 30% by the best known technique Not content with hair removal some electrologists go further For example in the classified sections of the telephone directories in some cities their advertisements blandly announce that they remove moles and warts and the bolder ones have added "birthmarks and kindred skin blemishes," acne" and fungous growths" I need not point out how dangerous this excursion into the field of diagnosis and nonmedically supervised therapy of such lesions can be Others have placed the designation of "doctor" before their names and have used degrees such as C E N D M M., C Th. C T, and D M Many imply endorsement of a personal physician, and one states that 75% of our customers (sic) come to us from doctors and dermatologists" The latter fact may be true *Reductio ad absurdum* is the manufacture of machines for self-use by one company which claims they have been rather widely sold

It is of course self-evident that hypertrichosis is not infrequently a manifestation of endocrine disorder and that in all cases an adequate history physical examination and, if necessary, appropriate laboratory studies are important to determine if possible the reason for excessive hair growth One wonders how many cases of endocrine disorders go untreated simply as a result of this "hands off" attitude At the present time we are confronted with the curious anomaly that a field of diagnosis (difficult at best) and therapy (also a challenge) is being delegated by default, indifference, or actual physician referral to medically untrained individuals

Not all those engaged in the procedure of electrolysis make unrealistic claims A significant group has obtained instruction at schools of electrolysis that have a certain amount of medical supervision Also to their credit, the course of instruction is limited to the technique of hair removal only On the other hand, many individuals who are so taught or who simply "go into business" employ this procedure with no medical supervision and, consequently, are unable to evaluate the problem of diagnosis and medical control For the most part, a symptom or sign is being treated, rather than the medical problem as a whole Moreover, damage resulting from the improper use of electrolysis or short wave (diathermy) units tends to discredit the only known method for successful hair removal The feeling that the procedure is too tedious and time-consuming to be practical in a physician s office is not valid in that a nurse or technician can be properly trained to carry out the procedure after medical evaluation of the problem has been made or a physician or several physicians may employ or supervise a properly qualified trained electrologist to carry out the technique

Patients should be educated to "see the doctor first" and to learn that often hirsutism or hypertrichosis is a medical problem Physicians should be prepared to accept the responsibility, the technique of hair removal should be carried out in the physician s office or under his supervision elsewhere In actual practice patients in need of electrolysis may be scheduled during an "off time" with the physician perhaps only "looking in now and then It is logical to assume that patients would prefer to have physician supervision rather than nonmedical management It is true that some aspects of the procedure may fall into the category of cosmetology i e removal of hair on arms legs or eyebrows This type of work can be delegated to an ethical electrologist after the physician has adequately determined the medical status This letter is not being written to imply an unqualified endorsement of the procedure of electrolysis nor to discredit it, but merely to point out how the problem is being handled at the present time Certainly, there is a need for further research into more effective means of hair removal but until such an improved method is available it is our responsibility to utilize the most accepted technique It is felt that the machine should be especially designed for this procedure only (whether electrolysis or short wave) All possible safeguards should be employed to minimize potential damage Factors that can be mechanically controlled, such as automatic timing, upper limits of current and proper calibration should be incorporated into the design With these safety devices and with properly supervised training and technique the procedure can be safe and effective It will afford considerable satisfaction in terms of grateful patients

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MISCELLANY

HERMANN BOERHAAVE AND SAMUEL JOHNSON

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When reading about Hermann Boerhaave I find almost invariably an inseparable description of his medical achievements and his attractive personality. Although enthusiasm about the former may be more subdued in certain references, acceptance of the latter seems never in dispute. This suggests to me that the personality of the man, as viewed by many, constitutes perhaps an integral part of the image of Boerhaave, the great physician. In fact, this image as it has come to us through the years may well have been perpetuated by personality attributes rather than by what we may consider, although perhaps artificially, his more impersonal medical accomplishments.

Accounts about Boerhaave and references to him recall for me a verbal portrait drawn by the famous Samuel Johnson. The portrait is so striking that I believe it deserves to be included in medicohistorical literature because it supplements and enlarges the total impression of this classic figure. Of interest is the fact that Johnson's description was not encountered in a medical work. It was included in a volume of essays and studies assembled by an assistant professor of English for undergraduate study.[1] This excerpt from a larger account about Boerhaave was placed under the group of sketches titled "A Little Group of Interesting People." It is probably one of the earliest encounters of numerous premedical students with a physician of importance in the history of medicine—but more of this later.

References to Boerhaave's appealing personality are easy to find. Major[2] refers to him as genial and charming. Robinson[3] writes of his mildness and kindness, his generosity and lack of professional envy. He comments on his unblemished character and calls him warm-hearted and clear-thinking. For Singer,[4] Boerhaave was "that most humane of physicians." Sigerist[5] tells of men like Vesalius, Harvey, and Morgagni remembered as scientists for their lasting contributions, whereas Osler, Sydenham, and Boerhaave are remembered not for discoveries but as great doctors, because in the people's opinion they came closest to the medical ideal of their time." Finally, Garrison,[6] commenting on the stories about Boerhaave, states, "The anecdotes about his fame reaching to China and his capacity for making monarchs wait only go to show that his influence was largely one of personality, a personality which was kindly, dignified, and unassuming."

Some facts about Boerhaave's activities are mentioned now as background data. Several sources have been used as noted, including the recent work by Major.[2] Hermann Boerhaave (1668-1738) was born at Voorhout. The son of a clergyman, he studied theology and received a doctorate in philosophy in 1690 at Leyden and a doctorate in medicine in 1693 at the University of Harderwyk. He practiced in Leyden, became a lecturer in the theory of medicine, and, in 1709, became professor of medicine and botany at the university. He became very well known as a teacher and physician, and attracted students from many parts of Europe. The number and reputation of his students was great, and Major, as well as others, thinks of Haller as the most famous. Boerhaave wrote several works, including "Institutiones medicae" and "Aphorismi de cognoscendis et curandis morbis." His writings were read and quoted widely in his time. Telling about Boerhaave as an eclectic in his medical theories, borrowing from iatrophysicists and iatrochemists, Major says, "All life, he taught, was the result of movement of the 'solids' and of the 'fluids' of the body, disease was a disturbance of this movement either in the solids or in the fluids."

Boerhaave as a Physician

Boerhaave was known widely as a clinician. Among the attractions for students were not only his lectures and personality but his bedside teaching. It may be mentioned parenthetically, although this fact is so frequently stressed, that he held Sydenham in great esteem, "on almost the same eminence as Hippocrates himself." Boerhaave used a thermometer for taking patients' temperatures and a hand lens to study secretions. Regarding his clinical facilities and activities, Sigerist has said, "On 12 beds half the physicians of Europe were trained!"[5] Regarding the bedside student-patient relationship, Brodman[7] notes that the medical 'rounds' method was first conducted by Sylvius in 1663 and later reintroduced by Boerhaave. With this plan, the student would conduct the examination of the patient, make a tentative diagnosis, and prescribe treatment. Discussion and corrections by Boerhaave would follow. Singer[4] notes that Boerhaave demonstrated the lesion-symptom connections in postmortem examinations of his patients and thus introduced the modern method of medical instruction.

Boerhaave brought Albinus to Leyden and edited with him the collected works of Vesalius. He is considered a man of wide learning. In addition to Singer's tribute to Boerhaave as an influential teacher with clinical acumen, he evaluates him as one with "balanced vision," an "eagnerness for new knowledge," and writes of "his sanity, his humanity, his generosity and his prophetic power." Robinson speaks of Boerhaave transferring medical supremacy from Padua to Leyden, and Osler,[8] with his well known interest in Boerhaave, commented, "What was known as the first Vienna School in the eighteenth century was really a transference by van Swieten of The School of Boerhaave from Leyden."

As I implied earlier, the tributes to Boerhaave's personality, and its retention and perpetuation as an ideal, are intimately allied with his medical attainments, although evaluations of the latter have been modified with time. For example, Robinson claims he was not fertile in discovery or great in original investigations. He says his role was that of an interpreter of accumulated knowledge. More pointedly, Major notes that Boerhaave's writings, which had great vogue in his time, demonstrate little originality and are mostly forgotten. They are not among the still profitably read 18th century books. More blunt is Haggard's[9] assertion that, although Boerhaave's reputation spread throughout the world, it is doubtful whether he advanced medical progress. Despite these qualified evaluations, Haggard calls him the greatest clinician of the 18th century, Major quotes Haller's description of him as "the general teacher of all Europe," and Robinson says that by 1731 he was the world's most famous physician, "the medical arbiter of his age," and "Holland was the schoolmaster of Europe." Furthermore, Singer says that Boerhaave must be considered the greatest physician of modern times, and Osler,[8] in an address before the Royal Medical Society in Edinburgh, when referring to some of Boerhaave's pupils, called him "the Dutch Hippocrates."

This total picture of Boerhaave, the man, must certainly be one-sided, but I have no intention to deflate the image. For surely it is an image, and I suggest that the ingredients of personality appear to influence considerably the very fact that Boerhaave, as we read of him, continues with us today. It is in keeping with this view that I return to the sketch mentioned earlier, the description by Samuel Johnson. This account, essentially a panegyric, is so striking, finely written, and very much more complete than is usually encountered that it seems worthwhile to include it among the sum total of opinions and impressions, medical and personal, of this famous doctor.

Johnson's Biography of Boerhaave

Johnson's sketch is part of his "Life of Dr. Herman Boerhaave," published in four parts in Gentleman's Magazine, 1739.[10] Samuel Johnson (1709-1784) was still a young man when Boerhaave died, and it was shortly thereafter that this sketch was published. Clifford,[11] the most recent biographer of Samuel Johnson, says that he appeared to identify himself in some ways with Boerhaave's characteristics and experiences

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but that there are obvious differences such as the capacity to make enemies Some of the brief references by Clifford to Boerhaave and Johnson were based clearly on the text of the Johnson sketch, as is evident when one reads the biography itself One example is the content of this life of Boerhaave in which connection Johnson stated in an introductory paragraph "We could have made it much larger, by adopting flying Reports, and inserting unattested facts, a close adherence to Certainty has contracted our Narrative, and hindred it from swelling to that Bulk, at which modern Histories generally arrive" (In this quotation and in a few to follow, I have retained the original punctuation, capitalization, and spelling but have omitted the frequent italics and ignored characteristics of obsolete type)

It is tempting to mention at this point that in a reference[12] to Johnson's "Life of Richard Savage," it has been claimed that he was able to achieve what he considered to be an important requirement of a biographer Nobody can write the life of a man but those who have eat and drink and lived in social intercourse with him" Presumably he arrived at this conclusion after his sketch on Boerhaave was published What he thought about this in retrospect is not evident.

Returning to Johnson's biography of Boerhaave, and whether we were to agree or disagree with these views, certain additional comments are of interest "It is I believe a very just observation that Men's Ambition is generally proportioned to their Capacity Providence seldom sends any into the World with an Inclination to attempt great Things, who have not Abilities likewise to perform them To have formed the Design of gaining a compleat Knowledge of Medicine by way of digression from Theological Studies would have been little less than Madness in most Men, and would have only exposed them to Ridicule and Contempt. But Boerhaave was one of those mighty Geniuses, to whom scarce any thing appears impossible and who think nothing worthy of their Efforts but what appears insurmountable to common Understandings"

Scattered through this life of Boerhaave are references to his insatiable curiosity after knowledge, his love of truth, and his patience He was too sensible of his Weakness to ascribe any thing to himself, or to conceive that he could subdue Passion or withstand Temptation by his own natural Power he attributed every good Thought, and every laudable Action to the Father of Goodness Being once asked by a Friend who had often admired his Patience under great Provocations whether he knew what it was to be angry and by what means he had so entirely suppressed that impetuous and ungovernable Passion? He answered, with the utmost Frankness and Sincerity, that he was naturally quick of Resentment, but that he had, by daily Prayer and Meditation at length attained to this Mastery over himself

Smith,[1] in his Essays and Studies comments at one point that we are so familiar with well known writings about Samuel Johnson, it is well to be reminded that he himself was no mean writer that his style was vigorous and clear and that he knew much about human nature In concluding, I quote now in full the same excerpts from the "The Life of Dr Herman Boerhaave that were reproduced in Professor Smith's book

"Thus died Boerhaave, a man formed by nature for great designs and guided by religion in the exertion of his abilities He was of a robust and athletick constitution of body so hardened by early severities and wholesome fatigue that he was insensible of any sharpness of air or inclemency of weather He was tall and remarkable for extraordinary strength There was in his air and motion something rough and artless but so majestick and great at the same time that no man ever looked upon him without veneration and a kind of tacit submission to the superiority of his genius

"The vigour and activity of his mind sparkled visibly in his eyes nor was it ever observed that any change of his fortune or alteration in his affairs whether happy or unfortunate affected his countenance

He was always cheerful and desirous of promoting mirth by a facetious and humorous conversation he was never soured by calumny and detraction nor ever thought it necessary to confute them for they are sparks, said he, which if you do not blow them will go out of themselves

"Yet he took care never to provoke enemies by severity of censure for he never dwelt on the faults or defects of others and was so far from inflaming the envy of his rivals by dwelling on his own excellencies that he rarely mentioned himself or his writings

He was not to be overawed or depressed by the presence, frowns or insolence of great men but persisted on all occasions in the right, with a resolution always present and always calm He was modest, but not timorous and firm without rudeness

"He could, with uncommon readiness and certainty make a conjecture of men's inclinations and capacity by their aspect

"His method of life was to study in the morning and evening and to allot the middle of the day to his publick business His usual exercise was riding, till, in his latter years his distemper made it more proper for him to walk when he was weary he amused himself with playing on the violin

"His greatest pleasure was to retire to his house in the country, where he had a garden stored with all the herbs and trees which the climate would bear here he used to enjoy his hours unmolested, and prosecute his studies without interruption

"The diligence with which he pursued his studies is sufficiently evident from his success Statesmen and generals may grow great by unexpected accidents and a fortunate concurrence of circumstances, neither procured nor forseen by themselves but reputation in the learned world must be the effect of industry and capacity Boerhaave lost none of his hours, but, when he had attained one science, attempted another, he added physick to divinity chymistry to the mathematicks and anatomy to botony He examined systems by experiments, and formed experiments into systems He neither neglected the observations of others, nor blindly submitted to celebrated names He neither thought so highly of himself, as to imagine he could receive no light from books nor so meanly, as to believe he could discover nothing but what was to be learned from them He examined the observations of other men, but trusted only to his own

Nor was he unacquainted with the art of recommending truth by elegance, and embellishing the philosopher with polite literature he knew that but a small part of mankind will sacrifice their pleasure to their improvement, and those authors who would find many readers must endeavor to please while they instruct

He knew the importance of his own writings to mankind and lest he might, by a roughness and barbarity of style too frequent among men of great learning disappoint his own intentions and make his labours less useful he did not neglect the politer arts of eloquence and poetry Thus was his learning at once, various and exact, profound and agreeable

"But his knowledge however uncommon holds in his character but the second place, his virtue was yet much more uncommon than his learning He was an admirable example of temperance fortitude humility, and devotion His piety and a religious sense of his dependance on God was the basis of all his virtues and the principle of his whole conduct."

26 W Ninth St (11)

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MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Indications for Commissurotomy in Mitral Stenosis G C Griffith Dis Chest 29 605-615 (June) 1956 [Chicago]

If surgical intervention in patients with mitral stenosis is to be of the greatest value, it must be *performed* before irreversible changes in the heart and related structures occur Progressive adaptation to the altered circulation *may relieve for a time* symptoms most indicative of the disorder, the physician must not be misled into accepting these changes as *signifying improvement* The left atrium is distended and the entire lesser circulation is slowed in relatively pure stenosis Both left atrial pressure and pulmonary venous pressure are exaggerated in atrial systole in patients with regular heart rhythm Ventricular diastolic filling is accompanied by the typical stenotic murmurs

Conditions that may mimic mitral stenosis include chronic failure of the left ventricle, constrictive pericarditis, congenital or acquired stenosis of the pulmonary veins, pedunculated tumor of the left atrium, intermittent obstruction caused by a free thrombus, hyperthyroidism, and interatrial septal defect Laboratory examinations are *helpful* in the detection of rheumatic activity or subacute bacterial endocarditis, both of which present contraindications to surgical intervention Cardiac size and configuration may be estimated by percussion, cardiac fluoroscopy, teleroentgenograms, esophagograms, palpation of the apex beat, angiocardiography, and unipolar lead electrocardiography Murmurs at the mitral orifice may be studied with the aid of auscultation and phonocardiography, thrills may be palpated *Early* physiological changes may be detected either by measuring the circulation time or by estimating the cardiac output, both at rest and after exercise, as calculated by cardiac catheterization Catheterization of the left side of the heart allows measurements of pressure in the aorta, the *left* ventricle, and the left atrium, and thus yields valuable information for the evaluation of valvular lesions in regard to the feasibility of their surgical correction At present, multivalvular lesions are considered inoperable *Patients in class 3 of the American Heart Association's classification of functional capacity,* or patients in class 2 who are *rapidly approaching class 3, are the* best candidates for surgery The most important factor in scheduling the operation is the rate at which the patient's *condition is deteriorating*

Treatment of Atherosclerosis by Diet Part I Results in Patients Followed from 36 to 72 Month A M Nelson Northwest Med 55 643-649 (June)1956 [Seattle]

In an attempt to obtain long-term correction of blood lipids, 175 patients with either coronary artery disease or cerebrovascular accident were placed on a diet low in fat They were followed up for from 36 to 72 months One hundred ten were successfully treated in that either lowering of the blood cholesterol by *more* than 10% was maintained or raising of the phospholipid-cholesterol ratio by 20% was maintained In 12 borderline patients, a mean cholesterol response level 7% lower than the initial cholesterol level coupled with a phospholipid-cholesterol rise of at least 12% was also considered a successful lipid change Most of the successfully treated patients had simultaneous shifts from an initial average cholesterol level of 329 to an average of 270 mean response level Phospholipid-cholesterol ratios were *changed from an average of 79%* to an average mean response level *of 93% In 26* patients the lipid levels did not change sufficiently to meet the above criteria, and the patients were regarded as *therapeutic failures* Thirty-nine patients discontinued *dietary therapy* within an average of 12 months, most of them because the initial clinical improvement was so pronounced that they had lost their respect for the disease

There was a *definite lowering* of the number of deaths in the patients with successful lipid correction, only 11 (10%) of the 110 patients died after an average of 50 months of treatment Of the 26 patients who were therapeutic failures, 8 (31%) died after *an average of 51 months of* treatment Of the 39 patients who discontinued dietary therapy, 12 (33%) died after an average of 53 *months of therapy* In the group with successfully corrected lipid levels, the death rate was fairly uniform during the first three *years Only one* death occurred in 98 patients treated for an average of 11 months during the final observation period, suggesting that *with the passage of time* greater immunity toward fatal attacks was gained despite the fact that the average age of the patients *treated moved from 56 to 60* years Death seemed to occur early in the therapeutic failure group The death rate seemed to lessen in the patients *in this* group during the third and final year of observation In patients who discontinued dietary therapy after an average *treatment* time of 12 months, deaths tended to occur at a higher rate in the third and final *year* Successful lipid correction is no panacea for the treatment of coronary artery disease, and an occasional recurrence of *symptoms* can be expected normally Fewer than one-third, however, of the successfully treated patients died or became invalids These results are better than in those patients who *discontinued* dietary therapy, those who were therapeutic failures, or in patients with atherosclerosis treated by *present symptomatic methods,* which do nothing to attack the underlying disease, in whom the average American mortality rate *prevails The final answer to the important question* as to the benefit of lipid control lies in the death rate resulting from recurrent attacks of *vascular occlusion in each succeeding year* after treatment has been started

Sitosterol Administration in *Normal* and Hypercholesteremic *Subjects The Effect* in Man of *Sitosterol Therapy on* Serum Lipids and Lipoproteins B A Sachs and R E Weston A M A Arch Int Med 97 738-752 (June) 1956 [Chicago]

The postulated relationship between dietary intake of fats serum cholesterol level, and the pathogenesis of atherosclerosis has been the basis for the prophylactic use of diets low in fat and cholesterol The recently demonstrated fact that orally administered plant sterols, without reduction of cholesterol and fat intake, can lower the serum cholesterol levels of animals and man provides a new approach to this therapeutic problem This paper describes the effect of β- and *dihydro-β-sitosterols on* the serum lipids of human subjects Nine studies, including double-blind experiments, on *five normal* subjects revealed an average mean fall of 13 0% and an average maximal fall of 20 9% in serum cholesterol level during *sitosterol* therapy One subject with xanthomatosis exhibited a mean fall *of* 20 3% and a maximal fall of 31 5% *in serum cholesterol* level Although her cholesterol level did *not* decrease *to* normal values, her Sf 10 30 lipoprotein *fraction did* The xanthomata stopped growing during sitosterol therapy, but grew rapidly again when therapy was discontinued

When *sitosterol* was administered, there was a rise in bile cholesterol concentration of a subject with biliary cirrhosis and a bile fistula The significance of this observation cannot be evaluated, because the spontaneous fluctuations in bile cholesterol concentration over prolonged periods *of* time are not known Subjects failing to take sitosterol immediately prior to eating did not exhibit sustained reduction in serum cholesterol levels In some patients with disorders of lipid metabolism, a rise in serum cholesterol levels was noted during sitosterol administration It is suggested that in these subjects either decreased absorption of cholesterol may stimulate increased

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization *and by individuals in* continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library American Medical Association" Periodical files cover 1947 to date only, and no *photoduplication* services are available No charge is made to *members* but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied *on* purchase *order* Reprints as a rule are the property of authors and can be obtained for permanent possession *only from them* endogenous production or small amounts of sitosterol may be absorbed poorly removed from the circulation, and spuriously analyzed as cholesterol in the serum. One of two patients with coronary artery disease exhibited a significant fall in serum cholesterol level which subsequently rose after sitosterol was withdrawn. Additional studies are necessary to establish the clinical significance of the reported reductions in serum cholesterol levels during sitosterol therapy.

Outcome of Solitary Pulmonary Nodules Discovered in an X-Ray Screening Program. G. W. Comstock, R. H. Vaughan and G. Montgomery. New England J. Med. 254:1018-1022 (May 31) 1956 [Boston]

This paper presents the experience of the authors with solitary pulmonary nodules detected in an extensive x-ray screening program in Muscogee County, Georgia. The records of 88 patients with such nodules were investigated. The median period of observation was 53 months. Solitary pulmonary nodules were observed more frequently among males than females, among white than among Negro patients and among those over 40 than among those under this age. They were associated with histoplasmin sensitivity but not with tuberculin sensitivity. The four carcinomas that were detected were all in white men. Of the nodules demonstrated five were tuberculous and two were granulomas of undetermined cause. The size of the nodules appeared to be an important diagnostic clue: of nine nodules with a diameter greater than 28 mm. three were carcinomas and three were tuberculous lesions. The presence of calcification or lamination also appeared useful: no carcinoma or tuberculosis was demonstrated among those with either of these features. Ten of the 88 persons are known to have died, 5 of them from causes apparently related to the pulmonary nodule. Three of the deaths were due to carcinoma and two to tuberculosis. The observed number of deaths was two to three times the expected number. Neither routine observation nor indiscriminate excision of the solitary pulmonary nodules can be recommended. Further knowledge of the fate of the patients with these lesions whether excised or not excised would help delineate the risk involved in various methods of treatment. With such information the management of patients with solitary pulmonary nodules could be placed on a more rational basis than is possible at present.

Evaluation of the Methods of Treatment of Essential Hypertension. F. D. Murphy and E. G. Schulz. Postgrad. Med. 19:403-416 (May) 1956 [Minneapolis]

Not all patients with hypertension need to be treated with the more powerful modern hypotensive drugs; some are not benefited and some are even made worse. Reduction of excess weight, adjustment of occupation, changes of habit and perhaps a minimum of drug therapy may be all that is needed. Patients with essential hypertension of grades 3 and 4, however, will always require more rigid treatment and may be greatly helped by judicious use of the newer drugs. The authors' plan, used in treating 59 selected patients with hypertension who have been followed for from four months to 15 years, has been to hospitalize the patients in the beginning and to start the treatment, except in severe cases, with Rauwolfia serpentina, the mildest of the hypotensive agents, in doses ranging from 50 to 100 mg. three times a day for three or four weeks. Patients whose blood pressure levels were unchanged at the end of this time were given either veratrum viride (Veriloid), beginning with 3 mg. a day, or hydralazine (Apresoline) hydrochloride, beginning with 50 mg. a day. Dosages were progressively increased until the blood pressure was lowered or the treatment had to be discontinued because of side-effects. The maximum dosage of 24 mg. of Veriloid or 800 mg. of Apresoline was continued for at least three months if the patient could tolerate it. Hexamethonium and pentapyrrolidinium (Ansolysen) were used for severe benign, premalignant or malignant hypertension when other agents failed. Treatment with the blocking agents was often started with the parenteral form and then shifted to the oral form, the dosage in each case being adjusted to the response of the standing blood pressure. Combination therapy, i. e., the blocking agent and a Rauwolfia preparation, was used in almost all cases. Rauwolfia, which was often accompanied by unpleasant side-effects when used alone, was effective only when hypertension was mild. Apresoline was equally effective in both benign and malignant hypertension. Side-effects were apparent in 29 patients, 19 of whom had headache. Malaise was noticed by almost all patients when the dosage was increased over 800 mg. a day and was a prominent complaint in 11. Tachycardia almost always occurred but could be reduced by the use of Rauwolfia. Arthralgia was severe enough to require withdrawal of the drug in four cases, and fatal agranulocytosis developed in one patient with benign hypertension who was on a moderate dosage for a short time. Veratrum was used in 17 patients, but in none was it possible to obtain a significant reduction in diastolic pressure. The toxic range of the drug was found to be too close to its therapeutic range in these patients and treatment had to be discontinued in four of nine in whom nausea and vomiting occurred. Hexamethonium and Ansolysen, both of which were effective hypotensive agents, seemed to have similar effects on the blood pressure but differed in the dosage required to produce them. Postural hypotension was the chief side-effect and was severe enough to cause collapse in some cases. Lowering of the blood pressure by the use of hypotensive agents does not provide a complete solution to the problem of hypertension; although the blood pressure itself is favorably affected, other essential conditions that are a part of the disease remain unaltered. Drastic surgical measures, however, such as sympathectomy and adrenalectomy, should not be used except in patients in whom adequate medical care has proved ineffective.

The L. E. Test in Patients Presenting the Clinical Picture of Rheumatoid Arthritis. S. W. Ross and E. K. Clardy. South. M. J. 49:553-559 (June) 1956 [Birmingham, Ala.]

L. E. tests were performed in 91 patients who presented the features of a rheumatoid-like arthritis. The involvement of joints was graded according to the classification recommended by the American Rheumatism Association and the findings indicative of involvement of cardiovascular, pulmonary, gastrointestinal, reticuloendothelial and nervous systems and of mucous membranes were recorded. Of the 91 patients 18 had a positive reaction to the L. E. test and 73 patients divided into two control groups of 20 and 53 admitted to two different hospitals had negative reactions to their L. E. tests. Fifteen of the 18 patients with a positive reaction had abnormalities in four or more systems, whereas 17 of the 20 patients and 45 of the 53 patients had one or no systems affected. These results uphold the reliability of reports that the incidence of system involvement is related specifically to the positive L. E. tests. The results do not otherwise clarify the relationship of systemic lupus erythematosus to rheumatoid arthritis.

Treatment of Herpes Zoster and Chicken Pox with Immune Globulin. J. C. Rodarte and B. H. Williams. A. M. A. Arch. Dermat. 73:553-555 (June) 1956 [Chicago]

The virus recovered from chickenpox is identical in appearance and in size with that found in herpes zoster. The authors cite Simpson who in 1954 demonstrated that with respect to clinical manifestations, reproductive cycles, infectiousness of the disease and immunity, ordinary chickenpox is identical with chickenpox contracted after contact with patients who have herpes zoster. The rationale of the treatment of herpes zoster with gamma (immune) globulin must be that if the subjective symptoms of herpes zoster are relieved and the morphological course of the disease is attenuated this is due to neutralization of the virus by chickenpox virus antibodies present in the pooled immune globulin. The authors gave immune globulin to 11 patients with severe herpes zoster. All complained of constant paresthesias such as burning, itching and boring and/or lancinating pain sufficient to incapacitate them and to interfere with their sleep. Each sought relief from discomfort provided only temporarily by proprietary analgesics. The authors advocate that immune globulin (20 cc. intramuscularly) be given daily for a period of at least four days (10 cc. being injected high in each buttock daily).

Prompt, persistent relief from pain was obtained and the skin lesions were modified. It is suggested that immune globulin may minimize posterior root ganglion and spinal cord damage and thus prevent postherpetic neuralgia Immune globulin was given also to five children with chickenpox during the first day of eruption Examination of the skin lesions suggested that chickenpox could be attenuated in this manner It is advocated that large doses of immune globulin be administered over a period of at least four days to patients with severe herpes zoster and over a period of three days to patients with chickenpox in order to evaluate the efficacy of this agent

On the Pain Following Ingestion of Alcohol *in Hodgkin's Disease* G Alcozer and D Azzena Arch "E Maragliano" pat e clin 2 939-945 (Dec) 1955 (In Italian) [Genoa, Italy]

The authors subjected 48 patients with lymphoglandular affections of neoplastic and metaplastic forms to oral and intravenous alcohol tests Eighteen were affected with Hodgkin's disease, 9 with chronic leukemic lymphadenosis, 3 with lymphosarcomatosis, 4 with chronic leukemic myelosis, 2 with plasmocytomas, 10 with neoplasias of various organs, and 2 with generalized carcinosis The test was positive only in three patients affected with Hodgkin's disease One patient noticed that every time he drank alcoholic beverages an acute pain would follow after 5 or 10 minutes in the thoracic and in the sternal regions The pain lasted from 30 to 40 minutes The patient abstained from drinking alcoholic beverages At a social gathering he became faint and was made to drink some cognac The usual pain followed at once After a week the skin of his chest became red Some nodes formed on it that soon became blue and ulcerated Another patient who developed pain after drinking wine was given the alcohol test, and after a month there appeared an adenopathy in the supraclavicular region, biopsy facilitated the diagnosis of Hodgkin's disease The limited number of cases does not permit the authors to draw definite conclusions, but it seems that positive reaction to alcohol test results in people with Hodgkin's disease in about 16% of the cases The test facilitates the discovery of lymphogranulomatosis that could not be discovered otherwise

Thrombotic Thrombocytopenic Purpura Review of the Subject with a Report of Three Cases in Children S A Wile and P Sturgeon *Pediatrics 17 882-896 (June) 1956 [Springfield Ill]*

Three cases of thrombotic thrombocytopenic purpura are described in an 8-year-old boy, a 10-month-old girl, and a 5-year-old girl The disease had an acute fulminating course in these patients They died within a few days or weeks from the onset of their illness A more rare chronic form of the disease marked by periods of remissions and relapses over several months to years, finally ending in death from an acute exacerbation, occurred in adult patients whose cases were collected from the literature Thrombotic thrombocytopenic purpura is a distinct disease entity manifested clinically by fever, purpura, thrombopenia, hemolytic anemia, and bizarre transitory neurological signs and symptoms The onset of the disease may be sudden or may be preceded by an infection, most generally of the respiratory tract Malaise, fatigability, myalgia, arthralgia, dizziness, headache, anorexia, abdominal pain, vomiting, and diarrhea alone or in combination may be noted during the prodromal period The disease is characterized microscopically by widespread occlusion of the arterioles and capillaries with an amorphous or granular acidophilic material, endothelial proliferation within the vessels, and the virtual absence of any inflammatory reaction in the walls of the blood vessels and adjacent tissues The clinical diagnosis of thrombotic thrombocytopenic purpura is not difficult provided the symptomatologic triad of thrombopenia, hemolytic anemia, and neurological disturbances is borne in mind In some cases, diagnosis can be made before death with the aid of the characteristic microscopic picture in paraffin sections of particles aspirated from the bone marrow or in biopsy specimens of the skin The possibility of thrombotic thrombocytopenia purpura should be considered whenever an unusually severe or fulminating purpura associated with thrombopenia is observed

No treatment has proved effective to date, and the disease has been fatal in every recorded case Exchange transfusion was tried for the first time in the 10-month-old girl, and the temporary improvement noted in the blood picture might have been the result not only of the transfusion of blood but of the removal of circulating antibodies, as in exchange transfusion in hemolytic disease of the newborn Although the use of corticotropin (ACTH) and cortisone seemed to be of little value further trials with these hormones, using large doses and possibly combined with exchange transfusions, early in the course of the disease, seem to be indicated

SURGERY

Endocrine Therapy of Metastasizing Carcinoma of the Breast A Walser Schweiz med Wchnschr 86 497-501 (May 19) 1956 (In German) [Basel, Switzerland]

Endocrine therapy is described by the author as hormone treatment with androgens, estrogens, cortisone, and cortisone-like steroids as well as surgical removal or irradiation treatment of ovaries, adrenals, and hypophysis A temporary remission or arrest of the growth of the tumor may result from each of these types of therapy Changes in the hormone balance prevent or slow down the growth of the tumor until it becomes adjusted and starts to grow again Recent experiences have shown that each type of hormone treatment or each surgical intervention is effective only once It is, therefore, of utmost importance that in every individual case a therapeutic plan should be laid down by specialists in close cooperation, i e , by the surgeon, gynecologist, radiologist, pathologist, neurosurgeon, internist, and endocrinologist They must take into consideration whether the patient has an estrogen-dependent or a nonestrogen-dependent breast cancer, terms suggested by Pearson and co-workers in a paper that appeared in THE JOURNAL (154 234 [Jan 16] 1954)

Ovariectomy is the method of choice in women with metastasizing cancer of the breast before the menopause Further therapy depends on whether the ovariectomy results in a remission, which occurs in almost 50% of the patients After the effect of the ovariectomy subsides, administration of androgens or adrenalectomy should be practiced in patients with estrogen-dependent tumors In certain cases, the less active, but well-proved androgen therapy may be preferred to the radical removal of the adrenals A further remission may be obtained with late cortisone therapy with large doses of the drug Hypophysectomy takes the last place in the therapeutic plan, but it should also be considered as a substitute for adrenalectomy in patients in whom the latter surgical procedure is not feasible When remission does not result from ovariectomy, improvement may not be expected in most patients from adrenalectomy either Inhibition of adrenal and pituitary activity may then be obtained by cortisone therapy and later by administration of estrogens Hypophysectomy is the least effective method in cases of this type

The succession of therapeutic methods in women after the menopause is the same as in those before the menopause Since remissions are obtained less frequently by ovariectomy in women after the menopause, many authors recommend combined ovariectomy and adrenalectomy The principle of a therapeutic plan applies to every patient, but the succession of the various forms of treatment can be varied according to the requirements of the individual patient Since endocrine therapy has only a palliative effect, it is important that this therapy should be carried out step by step so that full use is made of the effect of one hormone or of one surgical intervention The treatment of patients with metastasizing carcinoma offers a most difficult problem to the physician, a problem that is also ethical and social It is essential to keep in mind that carcinoma of the breast is not a local disease of the mammary gland but a disease of the entire body

Surgery for Pulmonary Cancer A Declaration of Dividends R H Overholt and J A Bougas Dis Chest 29 595-604 (June) 1956 [Chicago]

Of 588 patients with microscopically confirmed pulmonary cancer who were observed between 1932 and 1950, 204 (35%) had resections, with an over-all mortality of 15% Forty-six of these (23%) survived five or more years without any evidence of recurrence Of 80 patients who had resections of cancer that had extended grossly outside the lung, 4 (5%) survived five years or more Of 44 patients who had resection of cancer that had spread to mediastinal lymph nodes, 10 (22%) survived five years Thirty-two (40%) of the 80 patients with resections of localized pulmonary cancers lived five years Of the 46 patients who survived five years, 34 had epidermoid cancers, 7 undifferentiated cancers, and 5 had adenocarcinomas Epi dermoid cancer treated before there is gross or microscopic evidence of extension beyond the lung gives the best prognosis Seven of the 46 five-year survivors were treated for tumors with higher grades of malignancy, which thus proved to be not always hopeless Palliative surgery may turn out to be corrective Over 10% of those originally considered hopeless have been saved The extent of the resection must depend on the location and character of the lesion as well as on the functional capacity of the contralateral lung A limited resection has proved to be adequate and a preferable method of management for selected patients such as those with incurable cancer who were relieved of incapacitating symptoms and a few in whom the entire tumor could be removed by the limited resection

Excision of the Internal Mammary Chain in Radical Mastectomy Results in 57 Cases R S Handley, D H Patey and B H Hand Lancet 1:457-461 (April 21) 1956 [London, England]

The authors describe a new technique for excision of the internal chain of mammary lymph nodes in primary operations for carcinoma of the breast The method differs from others chiefly in that it preserves the entire pectoralis major muscle The authors so far have treated 57 patients by some form of therapeutic removal of the internal mammary chain The new technique here described was not used in all of these cases for instance, three patients were operated on according to Urban s technique, and some underwent excision of the sternal head of the pectoralis major muscle There was no operative death The patients were carefully selected The primary tumor was in the inner hemisphere of the breast in 46 of the patients in 9 it was a central growth and in only 2 it was in the upper outer quadrant of the breast. The disability, deformity, and morbidity of this operation were no greater than after the classical radical mastectomy Invasion of the internal mammary lypmphatic chain was found in 23 cases (40%) It will not be possible to assess the value of the operation in terms of a cure-rate until more time has elapsed.

The Emergency Portacaval Shunt. W D O Sullivan and M A. Payne Surg Gynec & Obst 102 668-676 (June) 1956 [Chicago]

The authors realizing that nonsurgical measures were largely ineffective in the emergency treatment of bleeding from esophageal varices and also impressed with the magnitude of palliative and temporary surgical measures considered it proper to perform a portacaval shunt in the treatment of actively bleeding cirrhotic patients They subjected nine patients to emergency portacaval shunts In each instance temporary hemostasis had been achieved by the use of the Sengstaken-Blakemore balloon. Seven of these nine patients had ascites six had jaundice (serum bilirubin level over 3 mg per 100 cc) and six had been in coma prior to operation Three patients died postoperatively one of hepatic renal failure five days after operation and one a month postoperatively of hepatic failure and hepatic vein obstruction The third died of persistent hemorrhage with a thrombosed portacaval anastomosis Of the six who survived operation three died later In two of these three deaths homologous serum was thought to play a major role One man died of homologous serum jaundice 4 months postoperatively another survived an attack of homologous serum jaundice and died of hepatic failure 18 months after operation and the third lived 3 years and 5 months after portacaval shunt before dying of hepatic failure. The remaining three patients were well when last seen There was no recurrence of esophageal hemorrhage in those who survived operation

In evaluating their surgical results the authors emphasized the salvage rate rather than the surgical mortality because they considered it unlikely that a higher survival rate would have been achieved without or with only a limited surgical treatment The immediate survival of six of the nine desperately ill cirrhotic patients is satisfactory With their current plan of management by prompt performance of a portacaval shunt when the hemorrhage necessitates esophageal tamponade they hope to prevent the deterioration that follows unsuccessful expectant treatment Improvement in the mortality is expected from earlier operation They believe that portacaval shunt should be considered as an emergency measure for the control of esophageal hemorrhage

Recurrent Varicose Veins K A Lofgren T T Myers and W D Webb Jr Surg Gynec & Obst 102 729-736 (June) 1956 [Chicago]

The factors involved in the recurrence or persistence of varices in the lower extremity after treatment by ligation (usually including resection) and injection were investigated in 341 patients who underwent 510 operations for recurrent varices All previous operations had consisted of ligation followed by sclerosing therapy except that two patients had undergone incomplete stripping procedures Recurrent varices of the great saphenous vein were present in 96% of the patients and of the small saphenous vein in 4% Whereas the ligations had been inadequate in 61% of the 510 extremities and adequate in 39% incompetent superficial veins remained in the thigh leg and foot in all and incompetent perforators in many of the patients The authors list the following as the essentials of adequate surgical treatment of varicose veins (1) adequate ligation above at the saphenofemoral or saphenopopliteal junctures (2) thorough removal of all incompetent superficial veins below down to the dorsum or lateral aspects of the foot by stripping and dissection and (3) individual ligation and resection of all incompetent perforators present Thorough eradication of all the incompetent veins is the most effective preventive measure against recurrence To ensure that a satisfactory result is maintained, periodic follow-up examinations are necessary

The Effect of Methionine on the Production of Mucopolysaccharides and Collagen in Healing Wounds of Protein Depleted Animals K N Udupa J F Woessner and J E Dunphy Surg Gynec & Obst 102 639-645 (June) 1956 [Chicago]

The studies described demonstrate that if rats are maintained on a protein-poor diet wound healing is retarded There seem to be two major factors in this impairment of wound repair a decreased accumulation of mucopolysaccharides and retarded collagen synthesis The authors found that when methionine was added to the protein poor diet the accumulation of mucopolysaccharides and the formation of new collagen fibers were restored to nearly normal levels

Observations on Patient Tolerance with Intravenous Administration of Fat Emulsion. P H Jordan Jr P Wilson and J Stuart Surg Gynec & Obst 102 737-747 (June) 1956 [Chicago]

This paper describes experiences with 633 infusions of a new fat emulsion in 209 men Each of the 15 lots of fat emulsion used contained 10% w/v sesame oil U S P, 4.5% w/v dextrose U S P and 0 65 w/v soybean phosphatides The emulsion was homogenized under high pressure collected in vacuum bottles and sterilized by autoclaving Each lot was subjected to extensive testing by the manufacturer to meet rigid specifications pertaining to composition particle size sterility thermogenicity toxicity antigenicity vasomotor activity and compatibility with human plasma Age of the emulsion at the time of administration varied from 1 to 5.2 months Most of the 209 patients were given infusions of fat emulsion because of their need for supplemental caloric intake either because of chronic malnutrition or because of inadequate postoperative nutrition The remaining patients hospitalized for minor operations, were volunteers who did not represent nutritional problems In general each patient received an initial test infusion of 500 ml If tolerance was satisfactory the infusion was continued to a total of 1 000 ml If the patient reacted unfavorably the infusion was discontinued and repeated on a second day If the patient s response was unfavorable on the second day no further administrations were attempted Rate of administration averaged 235 ml (23.5 gm of fat) per hour for four hours but was varied according to the patient s tolerance

Excluding temperature changes 62% of the infusions were without any untoward effects and 6% were discontinued because of side-effects With regard to time of onset the side effects fell into three groups Back pain flushing chest pain and dyspnea, if observed usually occurred after administration of a few milliliters of emulsion. Chills and associated pyrexia did not occur before the administration of 100 to 200 ml. of emulsion Headache nausea, vomiting arthralgia, and blurring of vision rarely occurred before 500 ml. was given. Reactions were most frequent in patients with hepatic dysfunction About

70% of all administrations of fat *emulsion* were accompanied by an elevation in the patient's *temperature It was* calculated that the energy lost is the result *of* temperature elevation averaged 4 to 8% of the calories *given The authors* believe that such losses are not *important The marked* variability *of* tolerance to fat emulsion manifested *by different* patients and by the same patient on different *occasions suggests* that reactions are due to unknown physiological *factors* within the patient as well as to the structure and composition of the fat emulsion Intravenous fat emulsion should be withheld from patients with adrenal insufficiency or severe hepatic or cardiovascular disease Fat emulsion can be given intravenously with safety and benefit to many patients who must depend entirely on parenteral alimentation for nutrition

Group Training of Patients with Injuries of Upper Extremities *B* **Eskesen Ugesk læger 118 372-376 (April 19) 1956 (In Danish) [Copenhagen, Denmark]**

Patients with trauma of the upper extremities, especially *fractures*, are treated in the outpatient department of the Copenhagen Municipal *Hospital* with group training and active exercises *The* importance of early *mobilization* and prophylaxis against post-traumatic dystrophy and for more rapid rehabilitation of the patients is stressed Group training stimulates the patients and leads to greater intensity in training The treatment is usually continued for from four to six weeks In the severest cases treatment has been given for from five to six months Neuroses cause decreasing activity in some patients and delay the return to full working capacity In more gravely ill patients with developed neuroses, psychiatric treatment is necessary Since 1950, 300 to 350 patients with injuries of the upper extremities have participated in the group training Although there was beginning dystrophy in *some* cases, almost all the patients have become able to work

NEUROLOGY & PSYCHIATRY

Deep Hypothermia in Intracranial Surgery *N Lundberg, K C* Nielsen and E Nilsson J *Neurosurg 13 235-247 (May) 1956 [Springfield, Ill]*

Eighteen patients between the ages of 22 and 68 years, 14 with brain tumors and 4 with aneurysms of the parietal and anterior communicating arteries, respectively, underwent a major intracranial operation with the aid of general hypothermia at the neurosurgical department of the University of Lund, Sweden The lowest *rectal temperature* varied between 24 8 C (76 6 F) and 29 2 C (84 6 F) Hypothermia was induced, and body temperature was *restored* to normal *by means* of circulating air in a special apparatus called a cold box in which the patient was placed Active *cooling* was interrupted when a rectal temperature of about 30 C (86 F) was reached, after an average of 2 hours and 20 *minutes* The patient was *removed from* the box and placed on the operating table, and the operation was started There were two operative *deaths*, *one* was caused by multiple cerebral metastases from *a generally* metastasizing bronchial cancer, and the other was *caused by* a diffuse purulent meningoencephalitis of unknown origin With the exception of bronchopneumonia of moderate severity in one patient, there were *no* extracerebral complic*ations of any significance* Two postoperative hematomas were evacuated There were *no* signs of cerebral complications ascribable *to* hypothermia The blood pressure dropped to levels between 40 and 60 mm Hg in 10 patients and between 60 and 90 mm Hg in 8 *patients* An additional decrease in blood pressure to levels between 30 and 50 mm Hg was induced with the aid *of* trimethaphan camphorsulfonate (Arfonad) in two patients with arterial aneurysm At these blood-pressure levels the conditions with regard to bleeding, hemostasis, and dissection of aneurysms were highly favorable In the patients with brain tumor, observations during the operations showed that the preoperatively increased intracranial pressure was considerably reduced in the course of deep hypothermia In none of these patients was any tendency to acute swelling of the brain observed during the operation Deep hypothermia produces certain favorable effects in intracranial surgery performed on patients with brain tumors and vascular malformations The method should be used in selected cases in which these effects are of special importance

Problems in Bleeding Disorders *M Stefanini Postgrad Med 19 420-433 (May) 1956 [Minneapolis]*

Normal hemostasis *depends* on the integrity of three basic elements the vascular wall, the platelet, and the coagulation of blood The presence of a bleeding tendency is usually revealed in a patient's history reports of spontaneous bleeding will be *found in severe cases, while* in those that are less severe bleeding will be noted *only after* major injury or surgical and dental *procedures* Laboratory *procedures* are needed, however, both to confirm the *existence* of the *tendency* and to indicate its probable cause, *whether* vascular *defect*, platelet deficiency, or coagulation abnormality *The tourniquet test, one* of the simplest and most valuable *of the screening* procedures, supplies information about both platelet sufficiency and vascular integrity Determinations of the bleeding and clotting *times* of whole blood are often considered adequate for the detection of patients in whom hemorrhage will occur during surgical procedures, but the inaccuracies to which they are subject make them somewhat unreliable One-stage *determination of* the *prothrombin* time of plasma and serum, or one of the many variations of this test, *seems, therefore*, to be more convenient, significant, and informative than the *determination of* the clotting *time of* whole blood The prothrombin time tests, which have been greatly simplified by the availability of *commercial* reagents, not only give a more *realistic* indication of the over-all coagulability of the blood but also show whether or not the two phases of blood coagulation leading to the formation of thromboplastin and thrombin are *normal Observation of* clot retraction, detection of fibrinolysis, and staining *of a smear of* the *peripheral blood for a semiquantitative estimate* of the number of platelets and a study of their morphological *appearance* are procedures that *require* little time or effort but are very rewarding either as presurgical tests or as *means of classifying* a patient *known to have a bleeding tendency The correct* classification of a patient's *hemorrhagic disorder is, of course, the* key *to its successful* treatment *Most hemorrhagic disorders can* be *controlled* if the remedies *now* available are *properly* used

Patients with occult bleeding tendencies, that is, those who do not bleed spontaneously but who will bleed severely during surgical procedures or after trauma, usually have either pseudo hemophilia, thrombocytoasthenia, or the hemophilia-like diseases They, too, can usually be detected by adequate preoperative screening tests More *specialized problems* are presented by the hemorrhagic syndromes directly due to surgical *procedures* and *appearing* in patients whose hemostatic *mechanism* was normal before operation One of these, thrombocytopenia caused by multiple replacement transfusions, is due *to* platelet deficiency induced by an abundant loss of *blood and its replacement* with platelet-poor bank blood Bleeding *of this* type can easily be controlled by the administration of platelet-rich blood or of prepared platelets Another, fibrinolytic exsanguination, which may occur during certain operations or in the hemorrhagic crises of obstetric *accidents*, is due to activation of the fibrinolytic system leading to severe fibrinogenopenia Liberal administration of fibrinogen (to replace lost protein) and corticotropin (to raise the antifibrinolysin titer) may prove life-saving in patients with bleeding of this type Finally, patients with polycythemia are *also* potentially serious bleeders and should be given careful preparation before being subjected to surgical procedures Various aspecific medicaments, such as the flavonoids, semicarbazones and alpha-naphthylamine derivatives, and toluidine blue have been advocated for the control of bleeding *Experience shows* that the flavonoids offer some help in the *treatment of* vascular purpura and that toluidine blue is of *some* help in certain specific bleeding disorders, the semicarbazones and alpha-naphthylamine derivatives, however, have little or *no* value

Results of Five Year Penicillin Therapy in Patients with Neurosyphilis T Orban and L Lazarovits Wien med Wchnschr 106 377-380 (April 28) 1956 (In German) [Vienna, Austria]

Two hundred fifty-four patients with neurosyphilis associated with a positive cerebrospinal fluid were given a course of 3,000,000 or 4,800,000 *units* of penicillin Later on *courses* of 6,000,000 to 9,000,000 units were given Sixty-five patients were treated with penicillin combined with fever therapy Of the 254 patients 56 (22%) had the meningovascular type of the disease, 74 (29%) were asymptomatic patients or had isolated pupillary syndromes, 60 (24%) had progressive paralysis, and 64 (25%) had tabes dorsalis One hundred eighty-seven patients were free from complaints and had few symptoms as a result of early treatment of syphilis with large doses of arsenic and bismuth Sixty-seven patients had lancinating pains, initial psychic disturbances, pseudoneurasthenia ataxia atrophy of the optic nerve and gastric disturbances The patients were followed up for five years Repeated courses of penicillin were given to those in whom the cerebrospinal fluid was restored to normal but later on became positive again and to those in whom the clinical aspect became worse despite improvement of cerebrospinal fluid

As a result of the penicillin therapy, 16 patients with lancinating pains became free from pain and four were improved In 14 of 23 patients with psychic disturbances the condition became stationary Disturbances of association, capacity for concentration and physical and psychic fatigue were improved frequently Pseudoneurasthenia was likewise improved Nine of 14 patients with ataxia were improved Of eight patients with atrophy of the optic nerve, five were improved and in three the atrophy did not progress Gastric disturbances could be prevented for prolonged periods For continued success of the penicillin therapy total doses of 6,000,000 to 12 000 000 units of the antibiotic were required for patients with meningovascular neurosyphilis the asymptomatic patients and those with isolated pupillary syndrome, while total doses of 12 000 000 to 20 000 000 units were required for patients with tabes Hospitalization was not required Penicillin therapy was highly successful in patients with meningovascular syphilis obviating the need for fever therapy In the asymptomatic patients or in those with isolated pupillary syndrome, fever therapy was resorted to only when after the administration of at least 20,000 000 units of penicillin the cerebrospinal fluid did not improve became worse, or when it became positive again after having been restored to normal In many patients with tabes dorsalis improvement could be obtained with penicillin alone obviating the need for fever therapy The cerebrospinal fluid was restored to normal and symptoms were improved Combined treatment with penicillin and fever therapy was required for patients with advanced atrophy of the optic nerve and for some patients with progressive paralysis and tabes dorsalis

Exogenic Factors Contributing to the Pathogenesis of Poliomyelitic Paralysis B Weber Deutsche med. Wchnschr 81 740-742 (May 11) 1956 (In German) [Stuttgart Germany]

Of the 265 patients with poliomyelitis who were reported in the course of the epidemic of poliomyelitis in Dortmund Germany, in 1952 12 died a mortality rate of 4.5% Of the 253 patients who survived 113 did not have paralysis and 140 had paralysis or paresis A follow up one year after the onset of the disease showed that 153 patients no longer had any paralysis or paresis while of the remaining 100, 46 had mild forms and 54 severe forms of paralysis One hundred thirteen pareses were still observed in the patients legs as compared with 172 at the onset of the disease The number of pareses in the arms at the onset of the disease was 52 and that observed one year later was 31 These numbers were not statistically significant, and the upper extremities were therefore excluded *from the author s* study It appears noteworthy that certain muscles of the lower extremities were much more frequently affected than others The most frequently affected muscles were the quadriceps the tibialis anterior and the iliopsoas These are the muscles needed for locomotion The muscles concerned with walking were two times more often affected than those concerned with standing Attention is called to the fact that untrained persons with so-called muscle hangover first have pain adjacent to the tibia. It does not seem unlikely that processes similar to those that elicit the muscle hangover may occur in the anterior column of the spinal cord and may contribute to the paralysis It may depend on functional peculiarities, and exogenous factors may play their part in its manifestation

The history of 29 patients revealed a peculiar occurrence i e trauma in 9 athletic strain in 7, and a febrile disease such as pertussis pneumonia or measles in 7, poliomyelitic paralysis occurred shortly after tonsillectomy in 2 patients after laparotomy in 2 others and after the patient s return from a strenuous trip in 2 others Although these 29 patients suffered exogenic damage before the onset of poliomyelitis a definite cause and effect relationship was not proved It may be assumed that these factors contributed to the causation of paralysis by causing an unusual increase in performance This, rather than the usual performance no matter how strenuous predisposes the patient with poliomyelitis to pareses Thus the study of functional peculiarities of the individual muscles and their behavior in poliomyelitis offers an opportunity for an objective study of the antecedent conditions necessary for the occurence of paralysis Mechanical factors are not the only ones that may predispose to the disease but one may assume that they favor the occurrence of paralysis

Prognosis After Survival from Meningitis Due to Pfeiffer Bacillus C Mose Ugesk læger 118 411-412 (April 26) 1956 (In Danish) [Copenhagen Denmark]

Of the 31 patients with bacteriologically verified meningitis from the Pfeiffer bacillus treated from 1932 to 1954 21 were given streptomycin. Twenty of these patients survived the acute phase, one patient died after four months from hydrocephalus caused by the meningitis Of the 10 patients not treated with streptomycin, only one patient survived. The 20 remaining patients were followed up for an average of three and a half years after the meningitis Five had no sequels of any kind and 12 had slight sequels—transient or still persisting slight irritability and nervousness slight paralysis of abducens bilateral positive Babinski signs or transient disturbances in the sense of balance One patient had had difficulty in walking for half a year after the disease In two cases marked symptoms were present not attributable to the meningitis The psychic disturbances observed at follow-up are ascribed to the purulent meningitis and the disturbances in the sense of balance to the streptomycin The large doses of streptomycin applied when the substance came into use were reduced later No symptoms of graver injury to the eighth cranial nerve were seen

Disseminated Sclerosis Etiology, Pathology, and Pathogenesis O Grontoft Nord med 55 613-616 (May 3) 1956 (In Swedish) [Stockholm Sweden]

The geographic localization of disseminated sclerosis is closely related to latitude the disease occurs frequently in northern latitudes with decreasing frequency toward the equator It does not seem to be a deficiency disease While it is not hereditary in the usual sense hereditary factors are believed to play a certain role as predisposing factors In about 90% of the cases disseminated sclerosis progresses with characteristic attacks and remissions The condition tends to be aggravated after each attack In about 10% of the cases mostly in patients aged between 40 and 50 the disease progresses rapidly and may lead to death after some months The average duration of life after the onset of the symptoms is estimated to be at least 20 years (Lumsden) The pathoanatomic picture is marked by multiple, usually well-defined patches varying in diameter from a couple of millimeters to several centimeters The patches widely spread over cerebrum and spinal cord are characterized by myelin loss without axon degeneration The tissue reaction around the patches is of a glial kind The different clinical *symptoms are explained by the localization of the* patches The histopathological picture leaves no convincing explanation of the pathogenesis The histological picture agrees more with a toxic degeneration than with an inflammation In the main, the clinical and pathological anatomy and a number of etiological factors are known The problem of pathogenesis and therapy continues unsolved

Carbon Dioxide Therapy in Psychiatric Patients G W Hopkins Mil Medicine 118 497-501 (May) 1956 [Washington D C]

After reviewing the history and discussing some theoretical aspects of carbon dioxide therapy, Hopkins describes various methods of administration, pointing out that in the 215 patients studied a modification of Meduna s method was used. Favorable results were obtained in 35% of those with psychoneuroses 63% of those with psychophysiological disorders 35% of those with personality disorders and none of those with psychoses

Six of 10 patients with unqualified anxiety reactions showed a favorable response to the treatment, while only 30% of a larger group of patients with qualified anxiety reactions responded favorably Only 24 9% of patients who did not become unconscious during the treatment responded favorably, whereas 49 6% of those who became unconscious during the treatments showed a favorable response Only 20% of the patients who became unconscious during the treatment but did not dream responded favorably, while 61% of those who became unconscious, and in addition dreamed while unconscious, showed a favorable response The more favorable response in patients who dream while under treatment may be due to the fact that the remembered dream material becomes available for the patient to deal with consciously accompanied by abreaction It may also be due to the fact that remembered dream material is often used in subsequent psychotherapeutic interviews Carbon dioxide treatment is contraindicated in patients with severe hypertension, active pulmonary tuberculosis, cardiovascular disease including coronary heart disease, acute allergic respiratory reactions, and advanced emphysema Psychiatric contraindications include prepsychotic states, as these conditions have been found to develop into frank psychoses as a result of carbon dioxide treatments

Virus Encephalitis A Clinical Study of 106 Cases K N Gour J Indian M A 26 384-388 (May 16) 1956 (In English) [Calcutta, India]

In the course of 1954, 65 male and 41 female patients with virus encephalitis were admitted to the hospital in Agra, India No age group was exempt from the disease, but two-thirds of the patients were less than 10 years old The incidence of the disease was highest in August and September, amounting to a mild epidemic after a period of drought and a long spell of hot weather A recrudescence occurred in the month of November The patients belonged to the poorer or middle class families living in unhygienic conditions The cases were classified into three types depending on the onset and severity of the signs and symptoms Fulminating cases were those with a sudden onset, high temperature of 105 or 106 F (40 6 to 41 1 C), vomiting, convulsions, restlessness, mental apathy, coma, and death within a few hours Severe cases were those with a fairly sudden onset, temperature of 102 or 104 F (38 9 or 40 C), headache, vomiting, restlessness, and mild delirium Mild cases were those in which the initial symptoms consisted of slight rise in temperature, headache, occasional vomiting, and listlessness Thirty-eight patients died, a mortality rate of 36% Twenty-four of these died within 12 hours of admission before they had received an adequate dose of antibiotics Tetracycline was given to 45 patients, oxytetracycline (Terramycin) to 32, and chlortetracycline (Aureomycin) to 10 Tetracycline gave the best results The disease was not contagious, not more than one patient belonged to the same family and in none of the physicians, nurses or attendants did any signs of the disease develop Laboratory studies revealed a polymorphonuclear leukocytosis in 53 patients and a lymphocytosis in 14 Reactions to Widal's test, which was performed in a few patients, were negative The routine and cultural studies of blood, urine, and throat swabs, and stool examinations gave negative results The cerebrospinal fluid was under tension in most patients, it was clear and there was an increase in cells and proteins were increased, but the chlorides were unaffected Culture of the cerebrospinal fluid was negative A virus was considered to be the causative agent, and it was suggested that it should be designated Northern India encephalitis virus

GYNECOLOGY & OBSTETRICS

Foetal Mortality in Pregnant Diabetics Strict Control of Diabetes with Conservative Obstetric Management J Pedersen and E Brandstrup Lancet 1 607-610 (May 5) 1956 [London, England]

Not until after 1940 was it generally known that the fetal mortality in diabetes was still very high (about 40%) and not much different from the mortality in the preinsulin era, in contrast to the prognosis for the mothers, which became good after the advent of insulin In January, 1946, at the maternity department of the Rigshospitalet in Copenhagen, a clinical trial of strict control of the diabetes and conservative obstetric management was started By the end of September, 1955, a series of 265 diabetic pregnant women had been treated in this way and the results compared with those observed in 157 diabetic pregnant women treated at the same hospital from 1926 to 1945 In the trial group, the mother was examined every three weeks during the first four months of pregnancy and then weekly About eight weeks before the expected term she was admitted to the hospital The aim was to obtain the best possible chemical control of diabetes by giving a measured diet and insulin The diet contained about 1,900 calories, 80 to 90 gm of protein 175 to 200 gm of carbohydrate, about 80 gm of fat, and supplementary vitamins, calcium, and iron The blood sugar level was controlled by alternation of the insulin dosage and distribution of the caloric intake over five or six meals, according to individual requirements To combat toxemia, hydramnios, and edema, table salt was restricted Phenobarbital was given to some patients, and abdominal amniotomy was tried in a few, but no hormones, mercurial preparations, ammonium chloride, rutin, or similar substances were used

Pregnancy was usually terminated at the beginning of the 38th week, on the average 20 days before the calculated term Nearly all deliveries were induced with drugs and/or by rupture of the membranes Only 29 cesarean sections (11%) were done on obstetric indications, whereas low-forceps deliveries were common In about 20% of the patients labor started spontaneously The newborn babies were placed in incubators and given oxygen, warmth, and humidity for the first 24 hours During this period the babies were not fed The authors differentiate between those receiving long-term and short-term treatment, depending on the stage of pregnancy at which the woman first applied for treatment at the clinic In 130 women who received long-term treatment the fetal mortality was reduced to 10%, whereas in the 135 receiving short-term treatment it was 33%, and in the 157 women treated between 1926 and 1945 it was 38% The total fetal mortality in the 265 cases steadily decreased but varied according to the proportion of patients receiving long-term or short-term treatment The authors believe that the lowest fetal mortality possible in diabetes is about 6% Intense medical treatment and expert obstetric care is necessary to achieve this Their treatment is prophylactic, making the babies more like normal babies, especially as regards neonatal blood sugar level, weight, length, volume of liquor amnii, and fetal mortality

Repercussions of Fetal Anoxia on the Central Nervous System A Minkowski and S Sainte-Anne-Dargassies Rev franç études clin et biol 1 531-553 (May) 1956 (In French) [Paris, France]

The oxygen content and oxygen capacity of blood from the umbilical vein or cord of 207 babies was measured before they cried for the first time Anoxia was defined as a saturation of less than 50% There clearly was a correlation between the degree of fetal anoxia and the neurological condition of the newborn infants, who were classified as normal, slightly abnormal, or frankly pathological Careful neurological examination was performed on each one, this allows of assessing the degree of cerebral involvement and sometimes of determining a prognosis Electroencephalographic findings tend to be more related to the clinical manifestations than to the degree of anoxia

Postmaturity causes fetal anoxia, even in the absence of obstetric trauma, in one out of three prolonged pregnancies It appears that the placenta becomes less permeable to oxygen once term is past Women who carry their babies past term should be carefully watched for signs of fetal suffering In a multipara with a history of previous prolonged pregnancies and harm to the offspring, labor should be induced without delay, probably before the traditional post-term two weeks are up The same policy should be pursued when there is an additional possible cause of fetal anoxia, such as toxemia of pregnancy, diabetes, or circumstances leading to dystocia The case of every primipara with prolonged pregnancy must be judged individually, labor should not be induced until after the two-week period unless there are indications to the contrary Some of the latter are slowing of the fetal heart beat, cessation of movement on the part of the fetus, and a stained amniotic fluid as revealed by puncture with aspiration

Use of Phenothiazine Derivatives for Obstetric Anesthesia K W Konig Medizinische, No 19, pp 727-729 (May 12) 1956 (In German) [Stuttgart, Germany]

Of 199 parturient women, 124 were given a single injection of 50 mg of promethazine combined with 50 mg of Megaphen (another phenothiazine derivative of even greater potency) and with 100 mg of meperidine hydrochloride Eighty-six of the 124 women were primiparas and 38 were multiparas Nine of the 124 women were given a second identical injection, and one received a third injection The remaining 75 women, 42 primiparas and 33 multiparas, were given a course of injections the first one consisted of 50 mg of Megaphen and 50 mg of promethazine and successive injections of 12 5 mg of Megaphen were given at two hour intervals The phenothiazine derivatives were given when the external os was dilated to 4 cm in primiparas and 2 cm in multiparas The hypnotic and analgesic effect of the injection lasted about four hours and occasionally up to eight hours The duration of the hypnotic effect was longer than that of the analgesic effect The phenothiazine derivatives should not be given too late so that the patients are able again to play an active part during the expulsion period The combination of promethazine, Megaphen and meperidine was superior to that of promethazine and Megaphen with regard to both the hypnotic and the analgesic effect A third combination, i e , promethazine, Megaphen, and scopolamine was used in five women only In three of the five patients scopolamine caused pronounced agitation that was not attenuated by Megaphen The further use of this combination does not seem to be justified Combined administration of promethazine Megaphen, and meperidine reduced somewhat the activity of labor pains and thus caused a certain prolongation of the first stage of labor, but other undesirable side effects were not observed The incidence of deliveries by forceps was not increased The effect on the blood pressure of the parturient women varied, but a hypotonic effect was observed in only a few patients A damaging effect of the drug on the infants was not observed The phenothiazine derivatives are indicated for obstetric anethesia and they exert a favorable influence on the delivery particularly on that of long duration associated with severe pain and with spasms of the external os

Cortisone in the Treatment of Infertility R B Greenblatt, W E Barfield and C P Lampros Fertil & Steril 7 203-212 (May-June) 1956 [New York]

Thirty-seven women between the ages of 17 and 39 years with amenorrhea or other menstrual disorders were treated with cortisone Many of them were considered to have mild adrenogenitalism because of moderately raised urinary 17-ketosteroid excretion and mild to severe hirsutism Others were thought to have a typical Stein-Leventhal syndrome in these patients enlarged ovaries were shown by x-ray or palpation Thirty two of the patients were married, and 28 of these complained of sterility or relative infertility The cortisone dose was adjusted to the level considered best for each patient and varied from 25 to 100 mg of cortisone given orally daily Most of the patients were given a daily dose of 50 mg Later in the study 20 mg of hydrocortisone was given two or three times daily to some patients In a few patients treatment was started with an intramuscular injection of 100 mg of cortisone or hydrocortisone, and in several patients 6 to 10 pellets of 100 mg each of cortisone were implanted, 32 4 mg of thyroid extract daily was given routinely to counterbalance any hypothyroidism that might be produced by the cortisone, and 3 24 gm of potassium chloride three times daily was added to compensate for excessive urinary excretion of this electrolyte Patients were advised to remain on a high-protein, low carbohydrate, low-fat, and low-salt diet Ten patients became pregnant during cortisone therapy or after therapy was discontinued Five women had ovarian wedge resection because of failure to respond satisfactorily to cortisone therapy, and three of these conceived There was a total of 15 pregnancies, 4 of which ended in abortion Infertile women with amenorrhea, anovulatory menses or other menstrual disorders especially when these are complicated by varying degrees of hirsutism, should have the benefit of a three-to six-month trial course of cortisone before being subjected to wedge resection of the ovaries or irradiation therapy An increased level of urinary 17-ketosteroids is a good but not a necessary indication for cortisone therapy Of the 13 women who became pregnant, 5 had increase 17-ketosteroid levels, 4 had a borderline increase and 4 had values within the normal limits of 7 to 13 mg per 24 hours As a rule low-normal values of 11-oxycorticoids or 17-hydroxycorticoids were observed Hirsutism is not a necessary prerequisite for cortisone therapy in patients with ovulatory disorders

PEDIATRICS

Radiological Complications of Primary Pulmonary Complex in Course of Isoniazid Treatment R Matte and R Cabrera Rev chilena ped 27 1-4 (Jan) 1956 (In Spanish) [Santiago, Chile]

Nine children between the ages of 1 and 9 years with primary pulmonary tuberculosis were given isoniazid alone or combined with streptomycin and/or PAS Isoniazid was given in average daily doses of 6 6 mg per kilogram of body weight up to an average total dose of 7 8 gm in a period of three weeks to five months The clinical results were satisfactory in all patients Early in the course of treatment the appetite and the general condition of the patients improved and they gained weight The roentgenograms of the lung showed an initial increase in the size of the lesions but later a marked clearing occurred under treatment The sedimentation rate decreased in seven patients and increased in two The radiological complications showed no correlation with the clinical results The authors conclude that the complicating roentgenographic shadows in patients treated with isoniazid have neither pathological significance nor prognostic value and that they are transient

Studies on Perinatal Mortality Analysis of Conditions in Copenhagen 1949 1953 T Kærn Bibl læger 147 1-42 (No 1) 1955 (In Danish) [Copenhagen, Denmark]

As a result of recent studies on anoxia in perinatal deaths and later brain injuries, the hypothesis is set up that a number of pathological conditions during pregnancy lead to a decrease in the oxygen reserve in the fetus and that influences during and after birth that would not otherwise be harmful are poorly tolerated The anoxemia may be acute, insidious, or intermittent From 1949 to 1953 there were in Copenhagen 1 830 perinatal deaths in 56,560 births In 1,525 cases anoxemia is believed to have been the actual cause of death In about one-half of the cases, pathological conditions in pregnancy are assumed to have affected the oxygen metabolism of the fetus Among general diseases diabetes, hepatitis and anemia are especially noteworthy In 14% of the cases hemorrhage occurred during pregnancy, and grave toxicosis was found in 6% with a corresponding number of mild toxicoses Postmaturity is considered significant after the 43rd week In 12% of the cases abnormalities in placenta or umbilical cord were present Factors believed to cause an extra handicap at birth are 1) atypical position of the fetus and pathological course of delivery, 2) intervention at birth, and 3) medicaments at birth The position of the fetus was atypical in 30% of the cases The course of delivery was pathological in fully one-third of the cases Intervention at birth occurred in 20% Morphine preparations, in the extent in which they are applied in Denmark, hardly affect infant mortality, but pituitrin medication may have been a contributing cause of death in some cases Cerebral hemorrhage is regarded as the cause of death in 5% of the cases and malformations in 9% Rhesus immunization led to perinatal death in only 36 cases

Current Results in Treatment of Tuberculous Meningitis and Miliary Tuberculosis J Lorber Brit M J 1 1009-1011 (May 5) 1956 [London England]

In 1954, 20 new patients were admitted to the Children's Hospital, Sheffield England with tuberculous meningitis Five had associated miliary tuberculosis One of the 20 patients, a 3-year old girl, died. She had been in status epilepticus on admission and never recovered consciousness In the treatment of this group, a reduction in the number of intrathecal injections of streptomycin to a minimum of 25 and an average of 32 did not result in poorer results than were obtained in patients treated previously, and the spinal fluid findings returned to normal as rapidly as before Only one of the survivors has serious neurological and mental sequelae The author believes it would be unwise to abandon intrathecal treatment because tubercle bacilli may reappear in the spinal fluid after a course of intrathecal treatment during isoniazid therapy Cortisone was not given to any patient

Of 69 consecutive patients admitted with tuberculous meningitis during 1952 to 1954 inclusive, 59 survived, and, of the 59 who were conscious on admission, 54 survived The 11 with uncomplicated miliary tuberculosis admitted during this period also survived None had meningitis during or after treatment with isoniazid and streptomycin

DERMATOLOGY

Occupational Eczema from Chlorpromazine G Høvding Tidsskr norske lægefor 76 250-251 (April 15) 1956 (In Norwegian) [Oslo, Norway]

In hospitals where chlorpromazine is extensively used, allergy on exposure to the chemical, leading to contact eczema, should not be underrated Professional steps to reduce the hazard of contact are the only means of hindering the possibilities of sensitization Prophylaxis must first of all aim at informing the nursing personnel of the danger to those who handle the drug Injection preparations should be used as little as possible and ampuls substituted as far as possible Instruments used for injection of chlorpromazine should not be used for other purposes In sterilizing the instruments the lid should not be removed from the container until the water has cooled, to prevent escape of steam containing chlorpromazine Gloves should be worn on opening the ampuls, on preparing and injecting the solution, and in cleaning the instruments Chlorpromazine tablets should be given whole Work with chlorpromazine should be assigned to a definite personnel

Topical Hydrocortisone Therapy in Diseases of the Skin A Clinical Evaluation I M Wartzki and B R Entwisle M J Australia 1 318-326 (Feb 25) 1956 [Sidney, Australia]

The authors analyze observations on 100 patients with various types of skin lesions who were treated with local applications of hydrocortisone ointment The lesions are grouped into nine different dermatoses, the designations used being for simplicity in understanding the diseases under discussion and not with attention to the finer and controversial points in dermatological nomenclature In certain dermatoses response seems to vary at different sites Failure to respond to routine treatment other than the application of hydrocortisone ointment has been used as a criterion in most of the cases instead of deliberately applied controls Hydrocortisone should not be used indiscriminately, as results are negative or inferior to other methods in many diseases of the skin It should not be used in the presence of infection of the skin, or at any rate unless it is combined with some anti-infective measure with which it is compatible The best results were obtained in the treatment of the following conditions erythema multiforme involving the lips, papular urticaria, dermatitis and eczema of the face, especially the eyelids, eczema of the scrotum, pruritus ani and vulvae, and intertrigo of the genitocrural and gluteal folds Results were disappointing in Besnier's prurigo, diskoid eczema, and otitis externa In four patients, two with scrotal eczema and two with pruritus ani and intertrigo of the genitocrural and gluteal folds, the condition was aggravated

The Clinical Vagaries of the Herpes Virus R T Brain Brit M J 1 1061-1068 (May 12) 1956 (In English) [London, England]

The clinical vagaries of the herpes virus include common recurrent forms of herpes simplex that may appear on any part of the body and occasionally simulate the sensory root distribution of zoster Recurrent herpes commonly affects the conjunctiva and cornea Trigeminal neuralgia may be associated with herpes simplex Primary herpetic gingivostomatitis usually occurs in children after the seventh month of life and up to the sixth year, with most of the cases occurring before the second year presumably because these children have no demonstrable specific antibodies Primary herpetic infection may occur as an acute vulvovaginitis In primary infections of the mouth, genitals, eye, or skin it is not difficult to recognize the herpetic nature of the lesions, and the general symptoms, even when severe, are rarely alarming, although indicative of a systemic infection The systemic reaction begins about the fifth to the seventh day, with fever or hypothermia, increasing icterus, lethargy, respiratory distress, vomiting, dyspnea, cyanosis, hemorrhagic tendencies, and the rapid development of circulatory collapse Cases were collected from the literature that showed that the herpes virus could produce a fatal septicemia or hematogenous hepatitis in infants in the absence of major cutaneous involvement

The strangest cutaneous manifestation of the herpes virus is seen when is occurs in an area of infected or damaged skin, especially in eczematous skin Kaposi originally suggested the term of eczema herpetiforme for the disease, which has since been called Kaposi's varicelliform eruption Thirty-six infants and children with this eruption are reported on In 30 the virus was isolated, or the typical intranuclear inclusion-bodies were observed in smear preparations from the lesions The other six patients had no contact with vaccinia, and their lesions were of the herpetic pattern During the same period only two cases of the vaccinial type were seen Both were fully confirmed, and vaccinia contracted from the infants developed in their mothers Of the 36 patients, 24 were between the ages of 5 and 15 months and the others were aged less than 3 years, with the exception of one 9-year-old girl Four of the 36 patients had a recurrence of Kaposi's varicelliform eruption, and the rarity of recurrences contrasted sharply with the high recurrence rate of simple herpes The unusual degree of infectivity of the herpes virus accounts for small epidemics of Kaposi's varicelliform eruption and for contact lesions on the hands or forearms of nurses and other attendants These are in marked contrast to the rarity of contact infections from patients with herpes simplex, especially as its lesions are usually on the lips and cheeks Contact lesions from patients with Kaposi's varicelliform eruption may be typical herpetic vesicles, bullae, or indurated papules, becoming pustular at their apices before necrosis of the central part forms a deep pock Such lesions developed in five nurses and a pathologist and were contracted from the patients in the course of the epidemic reported on

OPHTHALMOLOGY

Prednisone and Prednisolone in Ocular Disease D M Gordon Am J Ophth 41 593-600 (April) 1956 [Chicago]

Prednisone and prednisolone are comparatively free from the undesirable side-effects of other steroids, and they have proved of value in ophthalmologic conditions as well as in rheumatoid arthritis and many other disorders Gordon presents experiences with these steroids in 87 patients with uveitis, choroiditis, iritis, conjunctivitis, and several other eye lesions Prednisone and prednisolone were used topically in ophthalmic suspension and ointment forms Prednisone acetate and prednisolone free alcohol were available in ophthalmic suspensions of 0 125 to 1 0% concentrations The 0 25% suspension was considered optimal Prednisone acetate and prednisolone free alcohol appeared to be equally effective in equivalent concentrations The latter was slightly more irritating locally The acetate and alcohol forms were used in ointments of 0 1 to 0 5% strength The 0 5% strength appeared to be optimal Both prednisone and prednisolone were also given systemically, often with concomitant topical application of the same drug Initially, doses as high as 80 mg per day were given, with rapid decreases as the condition responded Later, 40 mg daily became the standard initial dosage in severe conditions and 30 mg in less severe cases

Preliminary evaluation indicated that prednisone and prednisolone are clinically superior to cortisone and hydrocortisone when used topically in the eye Systemically, their effect in ocular conditions is much the same as that of cortisone and hydrocortisone, but smaller doses are required The incidence of important side-effects was not significantly less than with other steroids In an addendum the author says that since this report was submitted for publication a series of patients several times as large as that analyzed here has been treated with prednisone and prednisolone, and the efficacy of these steroids has been confirmed Experiences with the use of the steroids now covering six years reveal that there is still much misunderstanding and misapprehension concerning the basic rules governing the application of steroid therapy in ophthalmology The indications for the use of hormonal-steroid therapy are edema and inflammation, regardless of cause The known contraindication is dendritic ulcer (herpes simplex) of the cornea This should not be confused with herpes zoster, which is an indication Topical therapy is indicated in all external conditions (those that can be seen with the naked eye) and in most patients with anterior uveitis (iridocyclitis) In the latter condition, it is advisable to shorten the duration and intensity of the disease by the use of systemic hormonal-steroid therapy for the first several days of the acute process, on an ambulatory basis Topical therapy is valueless when the lesion is located behind the ciliary body (posterior uveitis [choroiditis] and optic neuritis) Here systemic use of the various compounds is mandatory There is no such thing as a "course of steroid therapy the daily dose and duration of treatment are individual and depend on the response of each patient. It is essential to use sufficiently large amounts initially to suppress the disease An increase in symptoms is a signal to increase the dose, and a decrease in symptoms signals a reduction of the dose The most common errors are the use of topical therapy when parenteral is demanded and the use of too small doses initially

Idiopathic Retinal Detachment A Hagedoorn and D H Sieger Am J Ophth 41 660-667 (April) 1956 [Chicago]

In patients with retinal detachment tiny strands may be seen with the ophthalmoscope that are apparently pulling small flaps even small isolated pieces of the ruptured retina, into the vitreous space They have been described in pathological specimens as the result of a degenerative or postinflammatory condition of the vitreous body and retina In some publications, the suggestion may be found that alterations in the retina and vitreous body might secondarily enforce preexisting tiny adhesions to firmer connections which have a pathogenetic significance in the development of retinal tears However, as far as the authors know, no histological evidence was given to substantiate these theories In 1952 one of the authors demonstrated some sections, showing apparent congenital adhesions between retina and vitreous body The eye in question had been enucleated in a child, aged 9 months, with a diagnosis of pseudoglioma that could not be confirmed by the microscopic examination A pit in the optic nerve was found The authors believe that congenital retinovitreal adhesions may play a role in the pathogenesis of retinal detachment, they may explain cases of "idiopathic" detachment and they may be involved in the pathogenetic process resulting in the formation of strands associated with the formation of flaps and opercula in other cases of retinal detachment.

INDUSTRIAL MEDICINE

Bone and Joint Lesions in Caisson Disease G Liess Fortschr Geb Rontgenstrahlen 84 472-477 (April) 1956 (In German) [Stuttgart, Germany]

The author suspected caisson disease on the basis of roentgenograms of the shoulder joints brought to him by a patient who complained of rending or tearing pains, particularly in the shoulder joints The occupational history of this patient, however, at first failed to disclose that he had worked in caissons Repeated questioning finally revealed that in 1934 and 1935 he had worked in bridge construction and that once after too rapid decompression he had experienced severe pains in the shoulder and knee joints, so that he had to go back into the compression chamber His complaints of rending pains in shoulder and knee joints dated from 1936 On the basis of roentgenograms of the shoulder and knee joints and of the distal portion of the left femur, the author suggests that the diaphysial foci in humeri and femurs are infarcts, the shell-like walls of which had become visible as the result of impregnation with hydroxyl-apatite The irregularly striped and spotted opacities and the spots of lesser density in the proximal metaphysis of the right humerus and of the metaphyses of femurs and tibia are probably not all calcified infarcts, some may represent mild trophic disturbances of the bone with subsequent resorptive and osteoplastic proliferative processes of bone transformation It cannot be ascertained whether the causal trophic disturbances were caused by pressure of the liberated gas bubbles on the tissues or by the obstruction of blood vessels by gas emboli The changes in the proximal epiphysis of the right humerus seem to be a result of gas emboli in the subchondral terminal vessels The dense sclerosis in this region seems to indicate a predominantly osteoplastic transformation of bone, which renders the bone structure mechanically so defective that even relatively mild exertion at the shoulder joint will cause fractures

Vanadium Poisoning in Industry D L Gordon Thomas and K Stiebris M J Australia 1 607-609 (April 14) 1956 [Sidney, Australia]

The authors present data on 14 patients with vanadium poisoning who were reported to the industrial hygiene division of the Department of Health of Victoria, Australia, in a period of 10 days The first patient had cleaned an oil-burning boiler During the five-hour task a frontal headache developed and later a dry cough and colicky abdominal pains After 16 hours the patient complained of itching all over the body, swelling of the lips, and smarting of the eyes On examination, the breath sounds were bronchovesicular with an expiratory wheeze and numerous sibilant rhonchi Conjunctivitis was present, and examination of the skin disclosed a generalized urticarial rash With symptomatic treatment the rash and the skin irritation disappeared within 24 hours The bronchospasm gradually disappeared within one week A second group of 10 men also had been cleaning out an oil-fired furnace, and the third group had been working about ovens heated by oil fires Protective clothing and an efficient dust mask should be supplied to men employed in cleaning oil-fired boilers Vanadium is found in all fuel oil, particularly in the residual heavy oil It appears as the pentoxide after combustion The boilers are usually cleaned by chipping the pipes and using air hoses Bricklayers relining the combustion chambers are also exposed to the dust. Sulfur compounds present may further increase the severity of symptoms Poisoning is characterized by irritation of the nasopharyngeal mucosa and conjunctivas, with greenish black discoloring of the tongue anemia, dry cough, rhinorrhexia, recurrent hemoptyses, digestive and renal disturbances, nervous manifestations, trembling, headaches, psychic derangement, and even blindness The authors describe a modified colorimetric method for the determination of microscopic amounts of vanadium in urine and in the dust of oil-fired boilers The method is based on the development of a magenta-black color, with vanadium and 8-hydroxy-quinoline in an alcohol-free chloroform medium This chemical analysis demonstrated the presence of vanadium in the dust to which the men were exposed and also in the urine of some of them

Plumbism and the Colopathic Syndrome A Pendini and C P Odaleschi Gior clin med 37:241-258 (Feb) 1956 (In Italian) [Bologna Italy]

The authors studied the colopathic syndrome in 25 patients with plumbism Eleven patients had colic only once Four had them two or three times These four patients had had appendicostomies, two after one year of work, one after 10 years, and one after 22 years of exposure to lead According to some authors, recurrent appendicitis is frequent among patients with plumbism Hypochromia was present in all patients The number of red blood cells with granular basophilic degeneration was high Porphyruria had increased in almost all patients The renal function was normal in only 16 patients Three showed a slight decrease in the power of concentration or dilution The blood pressure was normal Some hyperchlorhydria was present in eight patients Roentgenoscopy showed acceleration in the passage of the motor test meal through the gastrointestinal tract. Signs of spastic or hypertonic colitis were present in all patients Duodenal ulcer was present in one, but the authors doubt that it had anything to do with the patient s plumbism The age of the patient and the length of the exposure showed no relation to the frequency with which the colopathic syndrome occurs Frequency of colic and the whole syndrome are independent of the spastic colitis caused by plumbism Anemia and porphyrinuria are not correlated with the degree of intensity of the colopathy Disturbances of the gastric juices have nothing in common with the syndrome All the patients showed clinical or roentgenologic evidences of colitis The authors think that use of alcohol, excessive smoking, poor hygienic habits, poor and unregulated diet, and other bad physical and psychic factors must be considered together with the toxic effect of lead and coproporphyrin to which these patients are exposed during their work

THERAPEUTICS

A New Drug for Alcoholism Treatment I A New Drug for the Treatment of Alcoholism J K W Ferguson Canad M A J 74 793-795 (May 15) 1956 [Toronto, Canada]

In an attempt to find a drug that, like disulfiram, would render the effect of alcohol unpleasant to the drinker but might be free from some of the disagreeable features of disulfiram that discourage some patients from continuing with its use, several derivatives of carbimide were tested The syndrome caused by alcohol after use of carbimide is characterized by intense flushing of the face and neck and often of the whole body, accompanied by a rapid pulse, a pounding heart, and panting respiration Nausea and vomiting sometimes follow, and in more severe reactions a precipitous fall in blood pressure may occur, particularly if the patient attempts to sit up or stand up The severity of the reaction depends on the amount of carbimide in the system and the amount of alcohol taken A dose of 50 mg of calcium carbimide followed in 3 to 15 hours by a test dose of alcohol was found to give rise to sharp reactions on several occasions When ethanol in doses up to 50 cc was taken 24 hours after the carbimide, the reaction was very mild When the dose of calcium carbimide was increased to 100 mg, two persons had definite reactions to test doses of alcohol 30 and 36 hours after taking the carbimide The action of carbimide persists for only one day, or at the most two days The effects of disulfiram are known to last for a week or longer There is also a difference between these drugs in the speed of onset of their sensitizing action to alcohol, all persons tested have been sensitized by a single dose of 50 or 100 mg of calcium carbimide, while some patients have been known to take 0 5 gm of disulfiram daily for one week or even two weeks without being sensitized to alcohol Vaguely unpleasant sensations, which passed off in about one hour and which were attributed to effects of carbimide on the central nervous system when the drug was absorbed too rapidly from the alimentary tract, were avoided when tablets of citrated calcium carbimide were used Clinical trials of citrated calcium carbimide are now in progress

A New Drug for Alcoholism Treatment II A New Protective Drug in the Treatment of Alcoholism (Preliminary Clinical Trial of Citrated Calcium Carbimide) J D Armstrong and H T Kerr Canad M A J 74 795-797 (May 15) 1956 [Toronto, Canada]

The unpleasant side-effects, apart from the desired disagreeable reaction to alcoholic beverages, of citrated calcium carbimide (Temposil) were compared with those of disulfiram Of 19 alcoholic patients, 13 were given citrated calcium carbimide in daily doses of 50 mg for from 21 days to about four months and 6 received doses of 100 mg daily for from 6 to 25 days Seven of the patients had been previously treated with disulfiram and had complaints about some side-effects of that drug such as drowsiness, nausea, impotence, and unpleasant taste None of the patients who had complained of drowsiness when treated with disulfiram had unpleasant symptoms when treated with citrated calcium carbimide One patient had a feeling of comfort better than in previous periods of sobriety when taking no drug One patient with drowsiness and impotence resulting from disulfiram felt more than ordinarily stimulated sexually after taking citrated calcium carbimide Two patients who had complained of impotence noted no difference when treated with carbimide The one patient who complained of unpleasant taste while treated with disulfiram did not have this symptom when treated with carbimide For comparison, 33 alcoholic patients treated with disulfiram were studied The dose given was 500 mg daily, and it was reduced to 250 mg if drowsiness appeared Two of these patients reported feeling drowsy and nauseated to such an extent that the dose of the drug was reduced to 125 mg daily Other complaints were not observed in these patients

This study suggests that citrated calcium carbimide is useful as one of the group of protective drugs in the treatment of alcoholism Even if there were no reduction in the incidence of side-effects, citrated calcium carbimide appears to have value as a substitute for disulfiram in patients reporting unpleasant side-effects with the older drug, but it would also appear that there are fewer side-effects with citrated calcium carbimide and that it may be the drug of choice The results to date are sufficiently encouraging to warrant continued investigation

A New Drug for Alcoholism Treatment III Clinical Trial of Citrated Calcium Carbimide R G Bell Canad M A J 74 797-798 (May 15) 1956 [Toronto, Canada]

Fifty-one men and 13 women were given 50 mg of citrated calcium carbimide in a single daily dose Twenty-six of the 64 patients had previously been treated with disulfiram Twenty-three patients claimed that they had undesirable side-effects while taking disulfiram, such as drowsiness, weakness, unpleasant taste, unpleasant breath, body odor, or impotence None of the 64 patients when treated with citrated calcium carbimide complained of such side-effects Only two stopped taking citrated calcium carbimide because of rheumatoid pain and sore eyes, respectively, which they attributed to the drug Two patients attempted to drink alcohol 24 to 36 hours after they had received the last dose of citrated calcium carbimide Both described very unpleasant effects similar to those that would have occurred had they tried to drink after disulfiram medication Citrated calcium carbimide is less toxic than disulfiram and is much better tolerated by patients as a result Accordingly, there is real hope that more patients will continue using the drug for the length of time considered important in launching a rehabilitation program The protection afforded the patient by citrated calcium carbimide is almost instantaneous If alcohol were taken it is likely that there would be fewer delayed and possibly dangerous reactions with this drug than with disulfiram Since the new preparation is more rapidly eliminated from the body, it does not provide the carryover of protection for three or four days frequent when disulfiram is withdrawn, but this carryover of protection is of no great significance because patients who discontinue the treatment with disulfiram in order to drink do not change their minds after two to three days without the drug

RADIOLOGY

Roentgenologic Signs of Chronic Gastritis K Setala and M Siurala Acta radiol 45 199-211 (March) 1956 (In English) [Stockholm, Sweden]

Roentgenologic and gastroscopic examinations were performed on 401 patients and biopsy specimens were obtained from 302 of them in an attempt to determine whether any common roentgenologic sign may be considered indicative of gastritis and is in agreement with the gastroscopic and/or histological appearance of the mucosal pattern and the anatomicopathological findings in the muscularis mucosae Results showed that such roentgenologic changes as increased turgor, irregularity, and coarseness of the mucosal folds, when occurring separately, appeared to be relatively unimportant in the diagnosis of gastritis when verified only by gastroscopy It is true that these changes were observed much more frequently in patients with atrophic gastritis, but only in a certain percentage of the whole series Hypertrophic and superficial gastritis, however, were suggested at least to some extent by thickening of the folds Positive correlation of the roentgenologic changes in the mucosal pattern with the histological findings was found more frequently than with the gastroscopic findings in patients with hypertrophic alterations of the gastric mucosa or in those with signs indicating superficial gastritis, but not in patients with atrophic mucosa It is evident that the roentgenologic relief pattern not only reflects a functional state but also depends on the pathological condition of the gastric mucosa, particularly the muscularis mucosae, and on the presence of mucosal hyperplasia or superficial inflammation Although marked roentgenologic signs have a certain significance in the diagnosis of some types of gastritis, roentgen diagnosis can be made only in a few patients The large and important group of patients with atrophic gastritis does not come within the scope of this diagnostic method The results of correlation must therefore, be considered far from satisfactory, and the examination of the stomach with the aid of the barium meal appears to be a rather rough and superficial method

Observer Error in Serial Radiography A H C Couch P H Sutton and R S Thorpe Tubercle 37 111-113 (April) 1956 [London, England]

In mass radiography a single reader has been known to miss pathological changes in one-third of the films This report is concerned with assessing the accuracy of serial radiography During routine clinic sessions physicians selected 500 pairs of films for examination Full-size chest films taken on two consecutive attendances of patients with pulmonary disease were chosen They were selected from patients in whom there seemed to be a reasonable expectation of changing lesions and were classified as better, no change and worse The chest radiographs were examined independently by two physicians and a radiologist The films were assessed as showing no change improvement, or deterioration There was agreement in 424 (85%) In 49 (64%) of the 76 cases in which there was initial disagreement the original opinion of the physician was accepted after discussion of the films In only 11 instances (2%) was it thought that a physician's incorrect assessment might have delayed or prevented necessary treatment, and only two patients could be said to have suffered in any way, neither seriously

Facts and Evaluations of Danger of Radiation in War with Strategic Atomic Weapons L Kreyberg Tidssk norske lægefor 76 247-250 (April 15) 1956 (In Norwegian) [Oslo Norway]

Kreyberg concludes that in a future atomic war with full use of the big atomic weapons no measures will be of essential importance in protection Persons in political and military key positions and small groups of the population can be given temporary relative protection, but numerically these persons will not play any significant part in the future fate of the nation Irreparable damage will befall such large parts of the world that future life with our present pattern of culture will be impossible Materially and biologically, large parts of the world will be permanently weakened The most exposed parts of the world are those where there is concentration of activities and population The more these truths are admitted and the sooner the true character of the situation is conceded privately and officially, the better A sensible standpoint can then more readily be adopted, both politically and concerning appropriations and efforts for civilian and military defense measures

The Hazards from the Increasing Use of Ionizing Radiations A Symposium: I The Control of Radiological Hazards in the Future Development of Atomic Energy W G Marley Brit. J Radiol 29 261-265 (May) 1956 [London, England]

In many nuclear reactors today there are several millions of curies of radioactivity locked up in the uranium metal fuel elements The prevention of hazard from these large quantities of radioactivity depends on the application of technological developments that have been made as the work has proceeded Radioactivity hazards can be kept under satisfactory control, but this has been achieved only by a great expenditure of money and manpower There should be no fundamental difficulty in continuing the present satisfactory record into the future and in keeping at a predetermined level the gonad dose to the population from this development, but it will be necessary to continue to expend large amounts of money and effort on the engineering and design aspects of radiation safety

The Hazards from the Increasing Use of Ionizing Radiations A Symposium II The Dose to Operator and Patient in X Ray Diagnostic Procedures G M Ardan Brit J Radiol 29 266-269 (May) 1956 [London, England]

The maximum permissible dose of ionizing radiation is one that falls short of causing appreciable bodily injury to a person at any time during his life In the eyes, blood-forming organs and gonads, the suggested permissible dose is 0.3 r per week (16 r per year) As far as the gonads are concerned, this figure only applies to those exposed to radiation in the course of their occupation The number of patients exposed to diagnostic x-ray procedures is constantly increasing If one accepts the age of 30 to 35 years as the age by which most people have produced the majority of their children, then we need take this population into account only when considering the genetic aspects Certainly more than 10% of them will have been radiographed by this age It is suggested that for large populations the dose should be reduced to 0 03 r per week, and large populations should be considered as not more than 10% of the total population A radiation worker may receive a body or gonad dose of 480 r in 30 years (the maximum permissible dose of 0.3 r per week) without noticing any ill effects during his lifetime (though this dose may approach or reach the level at which the incidence of leukemia rises above that in the general public) The patient may on the average receive 48 r to the gonads in the first 30 to 35 years of life if only 10% of the population receives this dose Presumably if the entire population is at risk, the average individual dose must be reduced to 4 8 r during the first 30 to 35 years of life The higher dose allowed to radiation workers depends on the genetic dilution afforded by the unirradiated public

If existing knowledge is applied, the patient and staff dose levels may all be kept within reasonable limits, but all ranks" must be dose conscious Many small doses add up to a large one Radiographers should be encouraged to tighten up all precautions, and if it is desirable to reduce radiation dose still further, cooperation must be sought from clinicians in reducing the number of examinations Unless dose levels can be kept low, it may become necessary to "chart" the patient's dose from the cradle to the grave There are other sources of radiation to be taken into account. These are increasing, and we must allow them a share of the "body burden "

The Hazards from the Increasing Use of Ionizing Radiations A Symposium III An Attempt to Assess the Genetic Changes Resulting from the Irradiation of Human Populations A Howard Brit J Radiol 29 270-273 (May) 1956 [London, England]

Two questions have to be dealt with in considering the genetic changes that will be produced by the irradiation of human populations How many mutations will be produced by a given dose of radiation? What effect will such mutated genes have? We cannot answer either question precisely In attempting to estimate the genetic consequences of radiation we have at best only approximate values to put into our equations Yet the qualitative truth of these equations is undeniable The damage may be described as a risk if we are thinking only of the children or grandchildren of an exposed individual or a small group of them but it is a certainty when we consider the results of an exposure however limited, in terms of future generations of the community and the species as a whole There is no "safe" genetic dose The amount of radiation from artificial sources to which the average person is now exposed in Great Britain will increase the natural mutation rate by a small fraction only The effects of the new mutations will not be measurable, but they are expected, if artificial radiation continues at its present rate for a generation to lead to premature death or sterility of a few hundreds or possibly thousands of persons in the next generation alone and to comparable numbers in later generations for hundreds of years Meanwhile, a much larger section of the population will be living at an additional slight disadvantage No satisfactory means of curing or alleviating the damage appears to be in sight. Efforts should be made to keep the radiation dose to the gonads as low as possible

BOOK REVIEWS

Hypertension A Manual for Patients with High Blood Pressure By Irvine H Page A B , M D , Director, Research Division Cleveland Clinic Foundation Second edition Cloth $3 Pp 109 with 8 illustrations Charles C Thomas, Publisher, 301-327 E Lawrence Ave , Springfield, Ill , Blackwell Scientific Publications, Ltd 24-25 Broad St , Oxford England, Ryerson Press, 299 Queen St , W , Toronto 2B Canada, 1956

The second edition of this highly readable book for the patient with hypertension and for other laymen interested in hypertension upholds the high standard of scientific accuracy of the first edition The need filled by the latter was evidenced by six printings over a period of eight years The author wisely points out that no book can replace the warmth, understanding, and counsel of the physician With exceptional clarity, the book accomplishes the three tasks that the author sets for himself, namely, to explain what hypertension is, to explain the purposes of the various examinations given patients with hypertension, and to give the reason for procedures employed in the management of hypertension Patient confidence should not be reduced, but enhanced, by the controlled frankness with which the author evaluates the shortcomings of our knowledge of the pathogenesis and treatment of hypertension There is a lucid discussion of arteriosclerosis and its relation to hypertension The book closes appropriately with a brief chapter on research and its importance for the ultimate solution of the problem of cardiovascular disease The reading of this book by patients with hypertension may well be regarded as part of the regimen prescribed by physicians

Social Security—Fact and Fancy By Dillard Stokes Cloth $4 Pp 208 Henry Regnery Co 20 W Jackson Blvd , Chicago 4 1956

Mr Stokes opposes social security as it exists today because there are insufficient funds to pay its promised benefits and because it is unjust Those who are eligible for and need its benefits are often deprived of them, while those who are financially secure may receive abundant benefits The author first explains how these corruptions in the system came about Social security originated in 1935 from a need on the part of many to have a small income during their years of retirement At the beginning, the system was reasonably adequate Most persons, particularly younger workers, would receive annuities paid for largely by their own and their employer's contributions The contributions were to begin at 2% of wages up to $3,000 per year, half of the contribution would be paid for by the employee and half by the employer The percentage was to be gradually increased until 1949, when the levy would reach a total of 6%—3% each from employee and employer The original provisions, however, contained flaws that eventually led to serious defects in the workings of the system The lower-paid workers received proportionately higher benefits than workers whose incomes were greater Although this unfairness was not great, it formed the basis for the charity provisions that later were to dominate the system The original bill also allowed Congress to alter the act, and eventually many who had contributed were deprived of any benefits

In 1937 the Supreme Court began to suspect that social security was competing with private insurance companies in the savings-investment-annuity business The Social Security Administration allayed the court's fear by describing its system as one providing charity for the destitute aged, but the public, partly because it enjoys the feeling of independence and self-sufficiency and partly because this theory was a fiction in 1937, was not widely informed of the new philosophy The public thought, and is still led to think, that the system is one of insurance In 1939 Old Age and Survivors Insurance (OASI) took the form that it has kept to the present Redistribution of income came into effect, and the insurance concept vanished in fact, as it had vanished in theory before the Supreme Court in 1937 People were no longer self-sufficient under the system The money they were to receive after age 65 might be more or less than the amount they and their employer had set aside over a period of years Because social security is no longer an insurance but a form of charity available to all economic groups, because it assumes that more of the aged are indigent than actually are, and because the redistribution of income (which had its basis in 1935 when the lower paid received proportionately the largest benefits) is effected in a disorderly and illogical manner, many ridiculous situations have arisen It often happens that the poor pay the "pensions" of the wealthy In other cases, a damper is put on the incentives of the employed and the semiretired Sometimes a man over 65 will have enough money on which to live by working 10 hours a week, OASI benefits make up the difference between his income and his cost of living The same man would be unable to make ends meet by working 30 hours a week, because then he would be deprived of social security

Also in 1939 the promised benefits began to increase and could not be paid for indefinitely out of the total contributions The reserve fund in 1955 contained about 22 billion dollars and collected interest at 2¼% It is estimated conservatively that benefits payable to all those covered in 1955 would be 267 thousand billion dollars This small and inadequate reserve fund, Mr Stokes believes, exists on paper only It is in a trust consisting of federal bonds These bonds are held by the Treasury Department and have never been sold The trust fund, a dependent of the government, has only a claim on the Treasury, an agent of the government It has a claim to its own and only to its own wealth If the OASI outlay for a year were greater than the funds allowed by Congress, money to pay the benefits would need to be borrowed or raised through increased taxes The OASI defenders claim that the system is not financially unstable because it is compulsory and perpetual Mr Stokes contends that, although compulsory and presumably perpetual, the system is unstable and will end in one of two disasters it will go bankrupt, or it will produce a great drain on the income of future generations If, in the year 2000, OASI benefits were paid on their present promised basis, four persons, perhaps in their youth, would have to be taxed to pay the benefits of one, perhaps a retired person with means, and these four persons would have to be taxed a higher percentage of earnings than is our generation "The promised benefits will not, and cannot, come out of any reserve If they are paid, the money will have to come out of the earnings of children now in school, of children not yet born" The author cannot predict whether it will be possible in the future to pay the promised benefits out of increased contributions, or whether, even with increased contributions, OASI will lack sufficient funds and collapse

Mr Stokes concludes by setting forth a new social security system, free of the shortcomings that have become a part of the present system The plan would be voluntary The tax would be 8% of the person's income, and the Treasury Department would issue social security bonds to each subscriber in the amount of of tax that he and his employer paid The benefits to each person would not exceed the total contributions of the person and of his employer Benefits would consequently be small, and those who actually need relief would receive it from an other source The author conditions the success of the plan on the maintenance of a balanced budget and stabilized public debt, without which there would be inflation and the bonds when cashed would be worth less than when purchased It is unfortunate that Mr Stokes did not consider the alternative of a step rate tax plan geared to attained age, so that those closer to age 65 would be required to pay a higher tax rate than younger workers Such an alternative would seem more likely to interest the electorate and would serve to point out the exploitation of the young as effectively as his proposal

The Treatment of Renal Failure Therapeutic Principles in the Management of Acute and Chronic Uremia By John P Merrill M D Associate in Medicine Harvard Medical School Boston Cloth $6 75 Pp 238 with 31 illustrations Grune & Stratton Inc 381 Fourth Ave , New York 16, 99 Great Russell St , London W C 1 England 1955

This short monograph was written "to serve as a guide to the treatment of renal insufficiency and renal failure" The two largest sections deal with the diagnosis, prognosis, and conservative clinical management of acute and chronic renal failure respectively The approach is quite properly physiological and mechanistic These sections are preceded by chapters concerning the elements of normal renal function, abnormal renal function, body fluid physiology, and the signs and symptoms of renal failure These are brief and will be easily comprehensible even

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated to those not chemically minded The remaining chapters are devoted to a discussion of the treatment of renal failure by extrarenal routes with special emphasis on dialytic methods (the so-called artificial kidney) The appendix consists of a short exposition of the technique of short term transperitoneal dialysis, a brief discussion of the management of a dehydrated patient with incipient renal failure, a short table of the potassium content of a dozen common beverages and a menu for a low-protein salt-restricted diet

The bibliography consists of 302 citations of the experimental clinical and didactic literature There is a short but carefully compiled index The pages are of convenient size and printed in legible type There is adequate, but not excessive, use of such devices as subtitles and paragraph headings Most of the line diagrams add to the value of the text, but several of the graphs have been reduced so much as to impair easy legibility The legends under some of the figures are unduly long occasionally running to a page or more of fine print. This is a useful and informative textbook The physiological principles incorporate the most recent contributions from the laboratory, and the clinical section is complete in content and sound in tenet The citations of the literature, while adequate, tend in some places to be a little uneven Overabundant documentation of the obvious is occasionally mingled with an unsupported statement of provocative interest For the most part, however, balance is maintained

It is unfortunate that some of the value of this monograph is dissipated by the somewhat labored style in which it is written While the train of thought, for the most part, is easy to follow, it is obscured in places by an imprecise selection of words and circuitous phraseology A further obstacle to the enjoyment of the text is the liberal use of medical clichés In these respects, the book is not up to the standard of Dr Merrill s monograph on acute renal failure (*Medicine* 32 215 [May] 1953) or of the current work of Strauss and Raisz (Clinical Management of Renal Failure Springfield Ill Charles C Thomas Publisher, 1956) Although the author has carefully attempted to maintain an attitude of conservative objectivity in the evaluation of extracorporeal dialysis, he has overemphasized the importance of such procedures Aside from these minor drawbacks this book can be recommended to all physicians and surgeons who have occasion to deal with patients with renal insufficiency

Handbook of Physical Therapy By Robert Shestack, Ph G R.P P T.R. Technical Director Department of Physical Therapy Washington County Hospital, Hagerstown, Md Foreword by I William Nachlas M.D Cloth $4.25 Pp 212 with illustrations Springer Publishing Co Inc., 44 E 23rd St., New York 10 1956

This book is not to be confused with the original Handbook on Physical Therapy," edited by the Council on Physical Therapy (no longer extant) in 1936 and published by the American Medical Association Although this book is written by a physical therapist, it has the blessing of physicians and surgeons who are proficient in their respective fields Written for anyone interested in physical medicine it is primarily intended for physical therapy technicians and as a ready reference for nurses in hospitals, in clinics and in physicians offices The author advises the technicians and nurses to be guided by physicians directions and to follow carefully the prescription of the physician in charge of the patient. In general it is conservatively written and the bibliography and source material are good There are, however, controversial features Some of the therapeutic suggestions mentioned will probably provoke discussion since authorities differ For example under therapeutic uses for galvanic currents there are listed adhesions, backache strain fatigue, bruises bursitis, chronic and acute ankle strain, ankle edema, neuritis paralysis scar tissue and synovitis of the knee or ankle With the possible exception of scar tissue (and here again opinions differ), it is doubtful that the specialists in physical medicine will agree that the physical agent in question is indicated The index seems ample This book is a ready reference on the subject of physical therapy for technicians, nurses and practitioners

Scalpel Men Who Made Surgery By Agatha Young Cloth $5 Pp 311 with 26 illustrations Random House 457 Madison Ave New York 22, 1956

This book for the layman or professional man interested in the history of surgery tells its story through the lives of the men who have brought about advances in surgical knowledge Its four parts deal with the control of hemorrhage, the control of pain the control of infection and the control of shock. The author s style makes for easy reading, and among the many whose lives are described are Ambroise Pare, William Harvey, Crawford W Long, who experimented with ether as an anesthetic, Wells and Morton who introduced nitrous oxide Joseph Lister, William Halsted, and Harvey Cushing The illustrations are few but well chosen There is a bibliography and an index

Clinical Recognition and Management of Disturbances of Body Fluids. By John H. Bland, M D Associate Professor of Medicine University of Vermont College of Medicine Burlington Second edition. Cloth. $11.50 Pp 522 with 109 illustrations W B Saunders Company 218 W Washington Sq Philadelphia 5 7 Grape St. Shaftesbury Ave London W C.2 England 1956

This second edition, with a new title, has accomplished its main objective of "providing a practical pathophysiologic interpretation of metabolic deviations of water electrolyte and hydrogen ion metabolism in all disease states for clinical utilization at the bedside" The first three chapters reflect a mastery of simplification without loss of essentials in presenting the necessary physiological and biochemical facts on which an understanding of the clinical disturbances of metabolism depend A clinical approach to such disease states as acidosis, alkalosis, cirrhosis, adrenal cortical insufficiency, and heat exhaustion is emphasized, and the pathophysiological bases behind them are cleverly and painlessly reviewed Fortunately, detailed practical therapy is included A refreshing, up-to-date review of the adrenal cortical steroids comprises one chapter This book should prove of great value to the general practitioner and the internist The pediatrician and the general and specialized surgeon may also read it with profit, since chapters are devoted to their particular domains Because of the clear complete, and interesting presentation of a difficult but important subject and the wealth of clinical application and practical therapy, this book belongs in every student s and practitioner s library

Adrenal Function in Infants and Children A Symposium Edited by Lytt I Gardner M D Associate Professor Department of Pediatrics State University of New York, College of Medicine Syracuse N Y Cloth $6 75 Pp 221 with illustrations Grune & Stratton, Inc., 381 Fourth Ave New York 16 99 Great Russell St London W C 1 England 1956

This symposium consists of contributions by 18 leading authorities and includes an anatomic discussion with particular reference to infants and children of the histophysiology of the adrenal cortex the hormonal levels in maternal and cord plasma chromatography and the response of infants to corticotropin and steroid metabolism Of particular interest to the practicing pediatrician will be the round table discussion on the therapy of hyperadrenalcorticolism conducted by Lawson Wilkins A description of the Barr skin biopsy test for determining the chromosomal sex is appended to the book The book is well printed and adequately illustrated As is probably inevitable in such a symposium, emphasis on the contributors own work results in a somewhat disjointed account of the subject instead of a unified presentation, as in a monograph by a single author The book will accordingly, be of primary interest to those actively engaged in research or treatment of congenital adrenal disorders

A Pictorial History of Medicine By Otto L Bettmann Ph D Founder and Director of Bettmann Archive New York City With *foreword* by Philip S Hench M D Cloth $9.50 Pp 318 with illustrations Charles C Thomas Publisher 301-327 E. Lawrence Ave Springfield, Ill Blackwell Scientific Publications Ltd. 24-25 Broad St. Oxford, England Ryerson Press 299 Queen St. W Toronto 2B Canada, 1956

This history of medicine relies heavily on pictures to tell its story—in fact, no page is without at least one illustration and most pages have several The author has also supplied an unobtrusive text. Beginning with practices common in ancient Egypt, the author proceeds through those of the ancient Greeks and Romans and those of medieval Europe to those of modern times Ancient quackeries are depicted as well as practices that have contributed to modern medical science In the excellent foreword, Dr Philip Hench emphasizes the priceless heritage of which the modern physician may avail himself at a cost of only the time necessary to study the works of the old masters The illustrations are well chosen Most of the old favorites and many not so well known are here The book should appeal to the medical man and to that portion of the general public that is interested in this phase of the history of mankind There is a bibliography and an index

QUERIES AND MINOR NOTES

TEST FOR PHYSICAL FITNESS

To the Editor —*Some public school systems have started to test their students for physical fitness by the use of the Kraus-Weber test, which tests various muscle groups According to this criterion, the children living in the various areas of the United States show an extremely high percentage of failures as compared to children of similar ages in similar communities in Europe, namely, Switzerland and Northern Italy and Austria Does the Kraus-Weber test provide relevant information on one aspect of physical fitness? Is the sampling done in this test relevant to the question of total physical fitness? I assume that the groups tested are free of serious organic disease*

M D , New Jersey

Answer —The so called Kraus-Weber test and its use in some schools has evoked considerable controversy Also, in discussion and description of the tests, there has been confusion of the terms health and fitness This resulted in part from the title of an early article on the test, Muscular Fitness and Health" (*J Health, Phys Ed & Recreat* 24 17, 1953), and the inference that the tests were indirectly a measure of health Today's youth may live a more sedentary life, but by every solid measure they are healthier than any previous generation Children born today have a far longer life expectancy Many more of them live to enter school A greater proportion survive the school years On the average they are taller and heavier than their forebears Diseases that used to maim and kill them have been largely brought under control Any discussion of fitness inevitably raises this question Fitness for what? If the best answer is fitness for living, a broad definition of fitness becomes essential The concept of the integrated individual demands consideration of mental-emotional as well as physical constituents These would include *(a)* optimum organic health, *(b)* appropriate adjustment to irremediable defects, *(c)* ability to perform daily duties without physical or mental depletion, *(d)* a state of mind that permits full and satisfactory living, and *(e)* the capacity to meet stress and emergency situations successfully The Kraus-Weber test, originally used as one phase of diagnosis of muscularly deficient backs, according to its authors, consists of simple tests for trunk muscle strength and flexibility " Some of its advocates have interpreted it to measure fitness in a broad sense, and even to determine health status Obviously, test movements related largely to the trunk muscles can directly appraise only limited aspects of total muscular fitness They do not cover, for example, arm and shoulder girdle strength that might be tested by activities such as the push-up or chinning Nor do they include checking of speed or agility by events such as a shuttle or dodging run While there may be a correlation, it would require a broader battery of tests to appraise over-all strength, agility, speed and coordination—all parts of muscular fitness

Whether the Kraus-Weber test measures the aspects of muscular fitness it purports to measure has been questioned on several grounds 1 One of the test movements, "having the patient try to touch the floor with the tips of his fingers, knees kept straight" may be as much a test of relative length of body parts as of flexibility (Fox, M G , and Atwood, J *J Health, Phys Ed & Recreat* 26 21, 1955) Checking the correlation of sitting height and ability to perform this test movement could be most revealing 2 Since the test movements are more indigenous to European types of physical training than to the emerging freer American physical education, the comparative results may be chiefly a reflection of differing programs (Lawther, J D *J Health, Phys Ed & Recreat* 27 23, 1956) Testing European and American children in events such as base running for speed would probably show as much superiority for American children as was demonstrated by European children in the gymnastic movements 3 Little or no relationship has been found between scores on the Kraus-Weber test and scores on other motor ability and strength tests in comparative studies For example, there was no relationship between results obtained with the Kraus-Weber and the grip-strength test, which has been found by many researches to have a high relationship to general body strength (Phillips, M *J Health, Phys Ed & Recreat* 26 14, 1955) While the subject of the Kraus-Weber test is and will probably remain controversial for some time, there is little doubt that the accompanying publicity on fitness in both public and professional press will have beneficial results Already it has caused us to reexamine and clarify our definitions of health and fitness It has led school personnel and patrons as well as physicians to look critically at present school health and physical education programs The broad program needed for fitness has been agreed on by medical, education, and public health representatives (Suggested School Health Policies, ed 3, Chicago, American Medical Association, 1956) Now it remains to apply their recommendations in all our schools and communities

CONFESSIONS OF AN OPIUM EATER

To the Editor —*In Thomas De Quincey's "Confessions of an English Opium Eater," he states that he used daily 320 grains of opium, which was equal to probably 8,000 drops of laudanum a day Three hundred twenty grains of opium, in about 1840, would be the total of how much morphine today? Was a grain of opium then the same as a grain of opium today?*

H D Murdock, M D , Tulsa, Okla

Answer —The morphine content of crude opium varies greatly, extremes of 6 to 23% morphine content being reported The average morphine content of opium is about 10% Since the methods of harvesting and preparing crude opium have not changed greatly over the years, one might be safe in assuming that De Quincey's morphine intake was about 32 grains per day Ingestion of this amount of morphine is possible due to the development of tolerance and very likely would not be unusual in addicts under conditions of unlimited supplies of drugs During De Quincey's time there was no means of standardizing the morphine content of opium, so his daily morphine intake might have varied greatly Today official opium preparations are standardized to contain 10% of morphine Variability in morphine content would represent the chief difference between a grain of opium in De Quincey's time and a grain of opium today

LEG ULCERS IN ARTHRITICS

To the Editor —*A patient has chronic rheumatoid arthritis that has resulted in almost complete immobilization of all joints He has undergone all modern methods of therapy with no success He now has some chronic ulcers on the lateral aspect of the legs that have refused to heal in spite of massive antibiotic therapy It is impossible to keep him in bed and elevate the limbs because that results in the formation of decubitus ulcers Would the application of an Unna's paste boot be advisable? Are there any other suggestions to promote healing?*

R George Wolff, M D , Homedale, Idaho

Answer —Leg ulcers in persons with rheumatoid arthritis are almost always the result of dependency and stasis It is necessary to rule out arterial insufficiency as an etiological factor Stasis ulcers will not heal with topical applications alone, but require correction of the stasis This is possible either by elevation or by elastic support In this case, if arterial circulation is adequate, a bland dressing on the ulcer with a snugly and evenly applied elastic bandage from toe to knee should

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The answers here published have been prepared by competent authorities They do not, however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address, but these will be omitted on request ultimately result in healing An Unna boot would be satisfactory but possibly should be reinforced with an elastic bandage Skin grafting will accelerate the healing of large defects Elastic support should be continued after healing as a prophylactic measure

CARBONATED DRINKS

To the Editor —*What is the effect of carbonated drinks on the urine? I am particularly interested in any relation to pH of the urine This subject has arisen in the management of recurring renal calculi* M D *New Jersey*

Answer —This question has been discussed with several urologists who are of the opinion that carbonated drinks have little or no effect on the urine and would have no relationship to recurring renal calculi Just how much of the carbon dioxide that gets into the stomach with a carbonated drink is actually absorbed into the blood stream is debatable However whatever is absorbed could not affect the pH of the blood because any slight excess of carbon dioxide would be eliminated in the expired air hence the acidity of the urine would not be affected

HEMIFACIAL SPASM

To the Editor —*A woman aged 58 has an annoying twitching of the right eyelids, which seems also to extend down into the right cheek It came on suddenly and as she felt well otherwise I thought it was of nervous origin and prescribed small doses of phenobarbital with no success An oculist examined her eyes but found nothing that he thought causative, there is good vision corrected with glasses and no nystagmus Both pupils react well to light and accommodation Speech taste smell and hearing as well as appetite have all been normal There is no neuropathy of facial nerve (Bell's palsy) and the arms and legs are not affected I then prescribed chlorpromazine 20 mg twice a day for two weeks and later trihexyphenidyl (Artane) for a like period The past several weeks the patient has received intramuscular injections of 1 000 mcg of vitamin B_{12} but all apparently with no success The tic appears even while she is busy at her housework and may at times wake her from sleep I would welcome suggestions as to study and treatment* M D *Pennsylvania*

Answer —Although a positive diagnosis cannot be made on the evidence submitted here and it would be most desirable to examine the patient it seems likely that this woman is suffering from what is known as a hemifacial spasm Satisfactory treatment of this condition is difficult but best results have been obtained from partial division of the various branches of the facial nerve in the cheek in the anterior part of the parotid gland Unfortunately the results of such surgical treatment often are not permanent and the treatment often has to be repeated at a later date There is no medication that is known to be effective in this condition An alcohol injection is even less satisfactory than surgical treatment.

CANCER OF CERVIX

To the Editor —*What is the opinion of experts concerning the treatment of cancer of the cervix that has apparently been cured locally by radium and x-ray? I am interested in knowing whether surgical excision of the iliac nodes is advisable especially if the original lesion is apparently confined to one side of the cervix* M D , *Kentucky*

Answer —There is no unanimity of opinion relative to the treatment of carcinoma of the cervix Schmitz and his followers (*Am J Obst & Gynec* 49 19 1945) Graham (*Am J Obst* primary therapy and employ radical hysterectomy and pelvic lymphadenectomy when they have proof that the disease has recurred or persisted Smear studies and biopsy are used as adjuncts to palpation and visualization to determine these facts Carter and associates (*South M J* 41 895 1948) followed irradiation therapy with hysterectomy and lymphadenectomy when the erythema had subsided The incidence of complications however, was too great to justify this as a routine procedure after irradiation Meigs (*Am J Roentgenol* 57 679 1947), on the other hand, uses radical hysterectomy and pelvic lymphadenectomy as the primary treatment of stage 1 and 2 carcinoma of the cervix. Studies by Morton (*Am J Obst & Gynec* 49 19 1945), Graham (*Am J Obst & Gynec* 64 402 1952), and others have refuted the theory of radioresistance of all tumor in lymph nodes Therefore a majority of workers in the field withhold routine surgical procedures after irradiation and resort to this therapy when findings indicate radioresistance of the disease

FOODS THAT COLOR THE URINE

To the Editor —*Are there any foodstuffs or condiments that would give the urine a reddish color suggestive of hemoglobinuria?* M D *New Jersey*

Answer —Beets rhubarb and certain dyes can sometimes impart to urine a color that suggests hemoglobinuria or hematuria Hard candies colored with fuchsin and other dyes have caused urine to turn red or purple The reddish-brown coloration of urine that often appears after rhubarb is eaten is identical to that which appears after the use of senna, a purgative, and cascara a laxative drug Phenolphthalein also used as a laxative gives urine a magenta color In the incidence of reddish urine it should be remembered that certain drugs taken orally may sometimes cause actual hematuria It is stated in "French's Index of Differential Diagnosis" (edited by A H Douthwaite ed 7 Baltimore Williams and Wilkins Company 1954 p 343) that in the treatment of disease by turpentine hexamine etc , blood is passed in the urine and cases have been recorded in which hematuria occurred during treatment with sulfonamides "

METAL CLEANING IN RAILROAD SHOP

To the Editor —*In some railroad shops the metal repair parts are thrown into large vats containing chlorinated hydrocarbons with phenolic bodies where they are cleaned and then taken out of the vat and rinsed with live steam which makes these substances more volatile What pathology can be brought about by the continuous exposure to this over a period of years? What precautions should be taken? In regard to the chlorine in the chlorinated hydrocarbons what injury to the tissues can it cause?* M D *Michigan*

Answer —This query fails to mention any particular chlorinated hydrocarbon or phenolic in use The toxicity within the several members of the respective groups varies This reply deals only with prototypes and if the chemicals assumed are not the ones in actual use this reply becomes inapplicable The chlorinated hydrocarbon most likely to be employed in metal cleaning is trichloroethylene This toxic substance as its initial action may serve as a central nervous system excitant producing a state resembling early ethyl alcohol effects This stage may be followed by narcotic action In fact, trichloroethylene is a somewhat widely used general anesthetic Otherwise trichloroethylene may prove damaging to the respiratory and cardiac systems leading to early deaths from respiratory failure Severe damage to the kidneys and liver is not the rule but is not exceptional Dermatitis is commonplace Chronic poisoning may be doubted The maximum acceptable concentration for continued work is 200 ppm from which it appears that this substance is of a lower order of toxicity than carbon tetrachloride The phenolic likely to be utilized in metal cleaning is one or more of the cresols The toxicity of cresols is that of phenol Although the vapors of phenolic may lead to systemic impairment, greater threat arises from skin contact those agents readily passing the skin barrier causing systemic disorder although profound surface damage may appear Whatever be the mode of entry extensive exposure promptly leads to collapse and impaired respiratory function If the exposure is less severe the kidneys may be involved in nephritis in which suppressed urine may be a feature along with damage to the liver and other vital organs In the present instance the apparent need is for a more exact examination as to the materials and extent of exposure both to the chlorinated hydrocarbons and to the phenolics Since these circumstances are uncertain it may be well to solicit the guidance of the Michigan State Department of Health, which agency is qualified to make appropriate examination and recommendation

PINK LESION ON LIP

To the Editor —*A man, aged 42, suffers from a faintly pink, sharply demarcated, slightly elevated lesion running along in a wavy but definite line at the vermilion border of the upper lip It suggests granuloma annulare or lupus erythematosus Suggestions as to diagnosis would be appreciated*

M D, Massachusetts

Answer —On the basis of the description given, it is impossible to make any intelligent suggestion as to the exact disease that this lesion represents Apparently it is a dry, raised lesion and not suggestive of any eczematous or dermatitic process In general, the entire gamut of "granulomas" must be considered here It is assumed that the medical and laboratory studies of this patient yield no evidence of systemic disease, in particular syphilis, sarcoid, disseminated lupus erythematosus, tuberculosis, or deep fungous infection It seems probable that the crucial examination to make in this patient is a biopsy The tissue taken need not be a large wedge to yield adequate information If the chief site of involvement is the vermilion border, a small wedge of tissue may be taken and the incision sutured with hardly any detectable scar If the lesion is principally above the vermilion border, a small (3 mm) punch biopsy specimen may be taken with a scar no greater than that resulting from a small chickenpox lesion It is important that such a biopsy specimen be taken down to the subcutaneous tissue If an excision is done from normal skin into the vermilion border, care must be taken in suturing the lesion to avoid conspicuous irregularity In the field of tumors or granulomas representing systemic disease, the expert general pathologist will be capable of a well-informed opinion on the biopsy In the case of some less common conditions that are often entirely mucocutaneous, the help of a dermatopathologist may be needed, because this is a rather highly specialized field

TRANSFUSION WITH BLOOD OF MALARIAL DONORS

To the Editor —*There is some discussion in the California blood bank system about letting down the bars somewhat regarding the use of blood of a person who has had malaria without a recurrence in two years Our bank does not use such blood for replacement, only for plasma It is my belief that any restrictions thus far placed on reputed malarial risks are based on clinical experience, e g, recurrence after many years, without reinfection I also feel that any contemplated relaxation in these restrictions is likewise based only on clinical experience I do not consider this evidence sufficient to make a change in our program of excluding these risks for replacement*

M D, California

This inquiry was referred to two consultants, whose respective replies follow —Ed

Answer —There is a small risk of transmission of malaria by blood transfusion Methods are not available to laboratories to estimate the possibility of the transmission of this disease Instances of malaria following blood transfusion from donors who have had malaria more than 30 years previously have been reported In one experience the donor himself was not known to have ever had clinical symptoms of the disease In this latter case the transfused infection was due to Plasmodium malariae It is recommended (Technical Methods and Procedures of the American Association of Blood Banks, Minneapolis, Burgess Publishing Co, 1953) that individuals who have a history of malaria not be accepted as donors except for blood to be processed to plasma Individuals living in malarious areas who have taken suppressive therapy may be accepted as blood donors provided that two years have elapsed since discontinuance of suppressive therapy It is recognized that emergency situations and certain local conditions might require relaxing these requirements at the discretion of the physician Individuals who have had malaria in the past or individuals living in malarious areas may be accepted as blood donors provided the risk is known to the physician Should transmission of malaria occur, prompt antimalarial treatment can be given the patient It would be reasonable to suppose that the number of individuals who might give a history of malaria in the state of California would be relatively small and that there would be little need to relax the standards presently in use in that area The transmission of malaria in the United States by blood transfusion is believed to be an extremely rare occurrence However, when it does take place the examining physician in a blood bank is usually most anxious to reinstitute the more firm application of restrictive donor requirements and reject as donors those persons with a history of malaria or long residence in a malarious area

Answer —In November, 1953, the committee on medicine and surgery of the National Research Council accepted the recommendation of its subcommittees that donors with a history of malaria or intensive suppressive therapy who had not had a clinical attack in the preceding two years might be accepted as donors of whole blood for transfusion The National Institutes of Health has accepted this recommendation as the minimum period that may be used in accepting such donors for blood banks licensed under the biologics control provisions of the Public Health Service Act Donors who have had no clinical attack of malaria in the preceding six months may be accepted for donations to be used as plasma or plasma fractions In the latter case, the bottle and donor card should be stamped "For Fractionation Only" In April, 1956, the National Research Council reaffirmed the the above statement, but made an additional recommendation for overseas bleeding centers as follows "For bleeding centers in endemic malaria areas outside the continental U S donors who have had a history of malaria may be accepted for donations who have had no clinical attack of malaria during the past two years, whether or not they have been on suppressive therapy"

REACTION FOLLOWING USE OF TRIPLE VACCINE

To the Editor —*I should like to comment on the consultant's reply in the Query and Minor Note with the above title in* The Journal, *March 17, 1956, page 1004 A safer procedure to follow in a child who has had fever and irritability following an injection of diptheria and tetanus toxoids with pertussis vaccine would be to give each of the antigens separately and, even more important, to reduce the dose Thus the first dose would be 0 1 cc followed in five to seven days, if there were no adverse effects, with 0.2 cc and five days later with 0 2 cc again When the mother reports fever and irritability of a severe degree after injection of triple vaccine I give 0 1 cc of the slower absorbed preparation This is followed by 0.2 cc for two doses separated by a five-day interval In this way there have been no adverse effects Another method that has been quite successful is the intradermal one A poll of 58 physicians in the United States and Canada by me (Reactions from DPT Immunization and Its Relationship to Allergic Children, J* Pediat *47 60-67 [July] 1955) brought to light 15 cases of convulsions following use of the more slowly absorbed preparation during the period between 1949 and 1955 Not one of the children having a convulsion was allergic Convulsions have been noted with fluid triple vaccine as well as with other vaccines The exact mechanism is still poorly understood Faber and Miller (*Pediatrics *1 579-580 [April] 1948) have offered several hypotheses, among which is the allergic one However, it does not seem to me at this time that one could state unequivocally that fever and irritability following administration of triple vaccine is an allergic reaction*

Salmon R Halpern, M D
3534 Maple Ave
Dallas, Texas

EXCESSIVE COFFEE DRINKING

To the Editor —*In the answer to and comment on "Does drinking 20 to 30 cups of coffee daily definitely cause any harmful effects?" in* The Journal, *March 19, 1955 page 1069, and May 5, 1956 page 119, some valuable points were stressed, but another important feature is that such an amount of coffee would mask tiredness, which after all is a physiological response to stress and strain In the early stages such an effect may not be revealed by electrocardiographic or other findings In fact, the body may respond with a certain amount of compensation to the large intake of coffee, but the constant suppression of physiological fatigue will finally manifest itself in premature exhaustion with its various clinical consequences*

Alfons Salinger, M D
2212 Calumet Dr
Houston 4, Texas

« Washington News »

Payments to Disabled Plan Becomes Part of Law • •

Health Bills Enacted Touch on Score of Fields • •

PHS Ends Salk Vaccine Allocation Plan • •

House Report Asks New Civil Defense Approach • •

SOCIAL SECURITY

The new social security amendments, including payments to the disabled at age 50, now are the law of the land In signing the bill, President Eisenhower said he was hopeful that the new law "will, on the whole, advance the economic security of the American people " The President noted that the bill contained many provisions the administration had asked, including more U S money for better medical care of the needy aged, blind, disabled and dependent children, more federal funds for public assistance, new programs of grants to train social workers for research in methods to overcome dependency, and more U S money for child welfare

Regarding payments to the disabled and a lower retirement age for women, President Eisenhower declared "The original proposal to lower the retirement age for all women was changed to provide that employed women and wives may accept reduced benefits at an earlier age or obtain full benefits at age 65 I am hopeful that this provision will now have no adverse effect on employment opportunities for older women

Congress also modified somewhat the original proposal to provide disability benefits at age 50 or above A separate trust fund was established for the disability program in an effort to minimize the effects of the special problems in this field on the other parts of the program—retirement and survivors protection I also pledge increasing emphasis on efforts to help rehabilitate the disabled so that they may return to useful employment " The President also noted that, in the bill as finally passed, the taxes of persons on payroll and those of the self-employed persons are only half of the 25% increase proposed in the House version

HEALTH LEGISLATION

The 84th Congress, extending through 1955 and 1956, completed action on legislation in a score of health fields Very few health bills were passed in the first session, but action came fast in the closing weeks this year The only significant developments last year were measures authorizing a survey of mental health problems, which is now under way, grants for air-pollution work, a federal-state program for Salk poliomyelitis vaccine, and a two-year extension of the "doctor-draft" act, with an expiration date of next July 1

Of great importance to the medical profession is the new act providing for the medical care of dependents of military personnel Currently a Defense Department task force is working out regulations Under the act the program is scheduled to go into effect next Dec 8 The Secretary of Defense may require dependents in certain areas to receive all or part of their care at military facilities, others are to be protected through use of insurance or health plans, with the U S paying the entire premium but the dependents meeting a share of the costs

After considerable political maneuvering, Congress authorized the establishment of a National Library of Medicine, which will take over the Armed Forces Medical Library At one point hearings were held on bills that specified Chicago as the location, rather than Washington, D C, where the military library now is located

A continuing survey of sickness and medical care, on which the Public Health Service already is at work, has been authorized The PHS plans to operate this with a small Washington staff and several hundred full-and-part-time employees in the field It will be the first time in more than 20 years that the nation s morbidity has been subjected to a detailed, scientific study

Legislation was passed to tighten up the prosecution and penalties for narcotics violators, including the optional death penalty under certain circumstances However, physicians are not affected by the new act in their practice of medicine

After a great deal of opposition had been aroused to its provisions for commitment, a law was passed to set up a new mental health program for the territory of Alaska The knotty issue of commitment was compromised by leaving the procedures up to the territorial legislature, rather than spelling them out in the bill The U S will finance the building of a hospital, will help pay initial operating costs of the program, and will turn over one million acres of land to the territory, the income to be used to care for the mentally ill

Important for medical schools and hospitals was enactment of a bill for a three-year program of matching grants for constructing research buildings and paying for equipment The authorization is for 30 million dollars a year

A grants program was enacted to make federal funds available for the advanced training of public health personnel and graduate nurses and for helping to pay the cost of training practical nurses The same bill also authorizes grants for special projects in mental health and continues the Hill-Burton hospital construction program for two more years, or until July 1, 1959

(Continued on next page)

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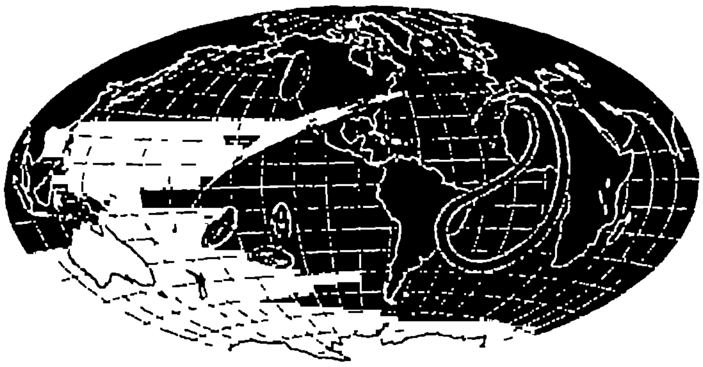

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Washington News—Continued

POLIOMYELITIS VACCINE ALLOCATION

The U S Public Health Service is ending its allocation program for Salk poliomyelitis vaccine, which in 15 months has handled the distribution of 90,422,463 doses Action was taken by Secretary Folsom of the Department of Health, Education, and Welfare, on the advice of the retiring surgeon general, Dr Scheele Termination of the allocation program will have no effect on the state grants arrangement, under which the U S has been helping to finance purchase of the vaccine While there will be no more state-by-state allocations, the PHS will continue to notify states of the amount of vaccine and manufacturer each time a new supply is released The PHS also will continue to receive manufacturers' reports on the geographical distribution of the vaccine

Ending of the allocation system had been recommended by the National Advisory Committee on Polio myelitis Vaccine because the supply now is more plentiful and there is great variation in demand among the states This became particularly apparent during July, when 18 states turned back vaccine previously allotted to them and 7 of the same states waived their right to participate in the next allocation

CIVIL DEFENSE

A full year of hearings has convinced the Holifield House subcommittee that a Department of Civil Defense of cabinet rank should be created and that drastic changes should be made in civil defense operations, "in concept and performance" The proposed department would merge civil defense work of the present Federal Civil Defense Administration and the Office of Defense Mobilization, which the subcommittee found to have "parallel or duplicating" functions

Other points in the subcommittee's report are as follows 1 Neither the ODM or the FCDA has fully grasped the technical, economic, or administrative requirements of civil defense Their reliance on evacuation is "weak, ineffective and dangerously shortsighted", instead, a national program of shelter building, financed largely by the federal government, is proposed 2 Industrial dispersion is regarded as having "little promise" because of powerful budgetary obstacles and "sporadic and limited efforts of the federal government in promoting such dispersal" 3 The so-called survival plan studies now being conducted in 25 or more cities under FCDA sponsorship are resulting in an "enormous duplication of paperwork" and should be suspended Furthermore, the subcommittee concludes, the FCDA is investing $20 million dollars in these two-year projects as a means of evading the legislative ban on federal contributions to pay administrative expenses of state and local civil defense organizations 4 The Secretary of Defense is urged, in consultation with the FCDA, to set up an effective program to train active and reserve personnel in civil defense duties At the same time, the subcommittee warns that, unless a strong national civilian program is developed, the military will expand its civil defense role at the expense of civilian authorities

TREATMENT FOR MENTALLY ILL

Twelve Veterans Administration neuropsychiatric hospitals are about to start an extensive evaluation to learn which treatments best promote the improvement or recovery of mentally disturbed patients The study is expected to take between four and five years There are three purposes (1) to determine the relative effectiveness of different techniques, such as drugs, electroshock, and group, individual, and other forms of psychotherapy, (2) to learn the relative effectiveness of varied hospital designs, staffing patterns, and program emphasis, and (3) to arrive at valid estimates of relative costs of the various factors in effective treatment programs

The study will be in charge of Dr Richard L Jenkins at Mount Alto Hospital in Washington, D C In announcing the investigation, Dr Jesse F Casey, chief VA psychiatrist, declared "When we have completed the study in four or five years, we expect to have for the first time the solid factual information we need to guide us in developing the type of hospital programs which will provide the most effective treatment for the recovery or improvement of our psychiatric patients"

Hospitals participating are located at Brockton, Mass, Fort Lyons, Colo, Jefferson Barracks, Mo, Lyons, N J, Montrose, N Y, Palo Alto, Calif, Roanoke, Va, St Cloud, Minn, Salisbury, N C, Salt Lake City, Topeka, Kan, and Marion, Ind

PERSONNEL

Dr Harvey B Stone, Baltimore surgeon, has replaced Dr Allan Gregg on the National Advisory Committee to the Selective Service System, which also serves as the Health Resources Committee to the Office of Defense Mobilization Dr Gregg said he was resigning because of many other pressing duties Joseph H Van Schoick, special assistant to the Veterans Administration director of physical medicine and rehabilitation in Washington, D C, has been appointed chief of corrective therapy at Washington Mr Van Schoick succeeds the retiring Dr John E Davis Dr Marjorie P Wilson has replaced Dr Jackson H Friedlander as chief of the Veterans Administration residency and internship division in the education service of the department of medicine and surgery at Washington, D C Dr Friedlander becomes manager of the VA hospital in Big Springs, Texas

MISCELLANY

President Eisenhower has signed into law a bill authorizing appointment of Army or Air Force women reserve officers as nurses or women medical specialists in the Army or Air National Guard The law is aimed at strengthening the hospital units of the Army or Air National Guards, which now have positions open for 726 nurses and four women medical specialists In a note to Public Health Service personnel on his final day as surgeon general, Dr Leonard Scheele commented that "such accomplishments as have been made would not have been possible without the devoted efforts of the staff of the Public Health Service —both by the commissioned corps and by the many thousands in civil service"

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RESULTS IN PATIENTS TREATED WITH THE COIL KIDNEY (DISPOSABLE DIALYZING UNIT)

Willem J Kolff, M D., Bruno Watschinger, M D
and
Victor Vertes, M D., Cleveland

• *A disposable type of artificial kidney, a dialyzing unit consisting of twin coils of cellulose tubing, was used in eight patients The biochemical details of 11 dialyses are given to show the reduction of blood urea thus achieved, and the clinical effects are illustrated in a table and in three case histories In one patient a total of 50 gm of urea was removed at one session and 66 gm at a later time*

The device here described has a dialyzing area of 18,000 sq cm and gives a urea clearance of about 140 ml per minute It has an advantage over some other forms of artificial kidney in being disposable, this eliminates certain problems of cleaning, sterilizing, and setting up The temporary improvement in some patients and complete recovery in others demonstrated the lifesaving possibilities of this apparatus

In acute renal failure, life often can be prolonged by timely dialysis, and ultimate recovery of the patient is possible unless the underlying disease precludes it In chronic uremia—especially in patients with desperate vomiting—one or two dialyses may accomplish in a few days the same symptomatic result that careful (often frustrating) medical management aims to bring about in weeks The purpose of this paper is to demonstrate the applicability of a disposable unit, which, in combination with simple pumps and a tank of rinsing fluid, can be used as an artificial kidney

Principle of Artificial Kidney

All artificial kidneys currently in use function on the principle of dialysis, which implies exchange through a semipermeable membrane the blood is on one side of a cellulose membrane and rinsing fluid is on the other Diffusible substances of small molecular size, such as urea, creatinine, uric acid, and phosphate, freely traverse the membrane Plasma proteins and protein-bound substances are held back Even viruses will not go through the cellulose membrane Substances with small molecules are removed from the blood if the volume of rinsing fluid is large and/or is continuously refreshed and if their concentration is greater in the blood than in the rinsing fluid Electrolytes can pass through the membrane, but by adding them to the rinsing fluid an equilibrium is maintained between the electrolytes in the blood plasma and those in the rinsing fluid In this way the plasma electrolyte concentrations can be controlled Acidosis, hyperpotassemia, or hypopotassemia can be corrected within a few hours, and sodium content can be adjusted to any predetermined level The rinsing fluid generally used approaches the composition of normal blood plasma (table 1), although the sodium content usually is lower (133 mEq per liter) The patient's blood usually is withdrawn from the radial artery and after it has been purified (cleared by dialysis) is returned to a vein In its subsequent circulation through the body, the blood becomes loaded with new retention products that will be removed during the next course through the artificial kidney

Description of Coil Kidney

Our present dialyzer,[1] or coil kidney, is a further development of artificial kidneys made by Necheles (1923),[2] Von Garrelts (1947),[3] Alwall (1949),[4] and Inouye and Engelberg (1953)[5] To make cheap, disposable dialyzers fit for mass production, we revived the old design in which the tubes for dialyzing the blood were enclosed between screens through which the rinsing fluid circulates Our coil kidney consists of a stationary coil of cellulose tubing separated by Fiberglas screens Narrow strips of screen along each side of the cellulose tubing allow a limited distention when the tubing is filled with blood The layers of screens and tubing are sewed in large rolls (fig 1) A strip with two cellulose tubes in parallel arrangement makes a "twin" kidney

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Ten-meter lengths of finished rolls are fitted with inlet and outlet tubes for the blood and are coiled around a *fruit-juice* can 10 cm in diameter The finished coil is fitted into a larger can (fig 2), with a garden-hose connection for the rinsing fluid at the bottom The inflow and outflow tubes are stored in the can, and a lid or top is sealed on in a household can sealer The entire unit may be sterilized either in an autoclave or with ethylene oxide as is done in industrial sterilization The coil kidney can then be shipped and stored and is ready for use after having been washed out with saline solution At the time of use, the top of the can is removed with a can opener and the tubes for inflow and outflow of the blood are found inside The entire unit is placed in or over a 100-liter reservoir filled with rinsing fluid Through the garden-hose connection in the bottom, the rinsing fluid is pumped in, it flows out over the open top of the can and back into the reservoir While the blood circulates around in the coiled tubing, the rinsing fluid circulates crosswise through the wire mesh

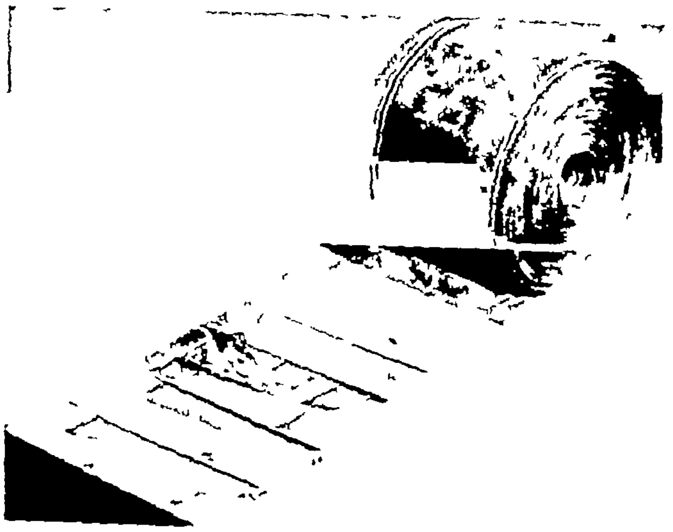

Fig 1 —Roll of sewed Fiberglas screen with dialyzing tube inside This roll is for a single kidney, which has two spacers (*narrow strips on both* sides of cellulose tubing) and four layers of screen to allow rinsing fluid to percolate freely *through wire mesh around tube* Twin kidney is twice as wide *and has* two cellulose tubes

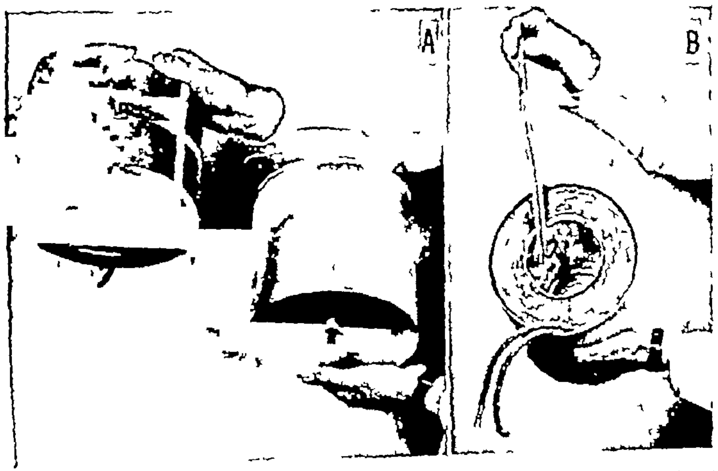

Fig 2 —Twin kidney completed with inlet and outlet tubes for the blood, is held next to, *A*, and in, B, large tin can in which it is sealed for storage In bottom of can is garden-hose connecting piece through which rinsing fluid enters can during actual operation

Additional Equipment

A simple pump (Sigmamotor) may be used to pump the blood Another pump (Hypro portable pump) is necessary to circulate the rinsing fluid A tank for the rinsing fluid is required, we prefer a stainless steel tank with a capacity of 100 liters (for easy calculation), with large inflow and outflow pipes (for quick changing of rinsing fluid), and with thermostatic control at 37 to 39 C (100 to 102 F) Initial investment in the additional equipment here described need not exceed $800

Performance

The twin coil kidney requires 750 to 900 ml of blood for priming, it has a dialyzing area of 18,000 sq cm It requires a rinsing fluid flow rate of at least 3 liters per minute At a blood flow rate of 200 ml per minute, urea clearance is 140 ml per minute, providing the rinsing fluid is fresh To overcome resistance inside the coil, and for return of blood to the patient's vein, a pressure of 160 to 180 mm Hg is required, which is delivered by the blood pump

Clinical Results

Eleven dialyses performed in eight patients are summarized in table 1 Five patients had chronic uremia on the basis of chronic renal disease and complications of hypertensive cardiovascular disease that precluded long-lasting clinical benefits The case report of one of these who was improved for three months will be presented Three patients had acute uremia One patient (case 2, table 2) had acute anuria following an abdominal operation, after initial improvement and establishment of diuresis he died from peritonitis One patient (case 7, table 2) had acute anuria as part of a hepatorenal syndrome, and one had anuria following a transfusion accident and hysterectomy (case 8, table 2), both recovered, and their case reports will be presented

TABLE 1 —*Composition of Rinsing Fluid* for Artificial Coil Kidney*

		mEq / Liter					
Component	Gm / 100 Liters	Na+	K+	Ca++	Mg++	Cl−	HCO_3−
Sodium Chloride	570 =	97				97	
Sodium Bicarbonate	300 =	36					36
Potassium Chloride	40 =		5			5	
Calcium Chloride	28 =			5		5	
Magnesium Chloride	15 =				3	3	
	Total	133	5	5	3	110	36

*Includes invert sugar (Travert), 0 4%, and lactic acid to adjust pH to 7 4

Uremic Symptoms

Uremic twitching was lessened in two of the three patients in whom it was present It did not improve in the third patient, who also had severe hypertension One patient was not mentally disturbed, all the other patients, as judged mainly from their ability to maintain conversation, were improved There was less somnolence, and often a feeling of well-being was expressed by patients the day after dialysis Vomiting lessened in all patients in whom it was present, although it sometimes continued during dialysis

Reactions During Dialysis

Special attention was given to the possibility of occurrence of reactions that have been observed during or after the use of other types of artificial kidneys In order that all disagreeable sensations might be recognized, general anesthesia, barbiturates, meperidine (Demerol) hydrochloride, and morphine were withheld from all patients prior to treatment with the coil kidney Subjective disagreeable sensations were absent, with the exception of local pain in the arm at the site of the cut-down in two patients and in the majority, fatigue toward the end of the procedure Rises in blood pressure were observed in most patients after three to five hours of dialysis These rarely exceeded 20 mm Hg and were not a serious problem in any Pentolinium (Ansolysen) tartrate, 0 25 to 2 mg intravenously, was given to five patients to suppress these responses[6] Rises in temperature were slight In one patient there was a rise of 2 degrees Fahrenheit, the temperature on previous days had been irregular Oozing of blood from the cut-down sites, although occurring in four patients, was not serious and stopped after removal of the cannulas and closing of the wounds Other bleeding did not occur Addition of heparin was discontinued two hours before the scheduled termination of dialysis Clotting time during the last hour of dialysis was 10 to 20 minutes Visible hemolysis was not observed in any of the patients The fall in levels of blood urea and creatinine within five to seven hours is indicative of the effectiveness of the dialysis The performance of the coil kidney approaches that of the most effective artificial kidneys now available

TABLE 2—*Summary of Eleven Dialyses (Eight Patients) with Coil Kidney*

	Case No										
	1	2	3b*	4a	4b	5	6a	6b	7	8a	8b*
Chronic (C) or acute (A) uremia	C	A	C	C	C	C	C	C	A	A	A
Uremic symptoms uremic twitching	O†	O	I†	O	U†	I	O	O	O	O	O
Sensorium during dialysis and 1 day after dialysis	O	I	I	I	I	I	I	I	I	I	I
Vomiting	O	O	I	I	I	I	I	I	O	I	I
Reaction during dialysis											
Fall in blood pressure	O	O	O	O	O	O‡	O	O	O	O	O
Rise in blood pressure	+	O	+	+	+	+	+	+	+	O§	O
Chills or rigor	O	O	O	O	O	O	O	O	O	O	O
Rise in temperature degrees Fahrenheit			2	1	1	0	1	1	1	0	0
Oozing of blood from cut-down sites	O	O	+	O	O	O	+	+	+	O	+
Other hemorrhaging	O	O	O	O	O	O	O	O	O	O	O
Blood chemistry											
Blood urea mg 100ml before dialysis	332	252	153	219	195	198	252	213	257	191	210
after dialysis	180	147	51	90	105	66	169	114	117	174	143
Plasma creatinine mg 100 ml before dialysis	19 1		15 4	12 2	13		24		23		13 7
after dialysis	8 4		7		7 7		12		13		8 4
Blood flow ml / min	125	200	200	200	200	250	190	250	200	200	200
Clotting time—1 hr before end of dialysis min	20	14	15	10	13	13	10	15	15	25	15
Total heparin used mg	150	140	138	145	170	180	130	100	105	190	155
Duration of dialysis hr	6¾	5	6	6	7¾	7¾	6	7	7	6	6
Survival after dialysis mo	2	⅓	1	4+	2+	½+	1½	1¼	Recovered		Recovered

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* Case reported in text

† O=absent or function not disturbed I=improved by dialysis and U=unimproved by dialysis

‡ A dialysis was performed on the previous day too little heparin was used and after two hours the blood filter became clogged This was not noticed the blood pump continued to function causing distention of the cellulose tubing and loss of the patient s blood Blood pressure fell but responded rapidly to transfusion The arterial and venous cannulas were left in place and were used for the dialysis on the next day this dialysis is reported in this table

§ No chronic hypertension prior to treatment

Apparent Drawbacks of Coil Kidneys

It takes 750 to 900 ml of blood to prime the twin kidney, however, with future refinement and standardization of construction this priming volume probably can be reduced Leaks have occurred in about one of every 20 kidneys, they are detected if blood is added to the saline solution used in perfusing the kidney prior to connection with the patient A seriously leaking coil kidney must be replaced with a new one Care must be taken that the outflow from the kidney to the vein and in the vein itself is free A clot in the blood filter, a strip of adhesive tape, a bandage, or a sleeve over the arm proximal to the venous tube may cause back-pressure in the coil kidney, and, if blood continues to be pumped into the other end of the kidney, the built-up pressure may rupture the tubing A rise in pressure in the outflow tract may be recognized by palpation or by placing an aneroid manometer in the circuit

Report of Cases

CASE 3 (CHRONIC UREMIA)—A 35-year-old woman had been in good health until her fourth pregnancy, at which time she developed edema and slight hypertension In January, 1955, some months after the sixth pregnancy, she was hospitalized because of dyspnea, and she was given digitalis On April 28, 1955, she was admitted to Cleveland Clinic Hospital because of nausea and vomiting The diagnosis was chronic glomerulonephritis and hypertension Therapy included blood transfusions, glucose infusions, administration of sodium lactate, antibiotics, and vitamins, and an attempt to treat her with a high-caloric, low-protein diet. Vomiting increased, and there was twitching and, later, convulsions and unconsciousness Blood chemistry studies showed the following values urea 234 mg and creatinine 15 mg per 100 ml. and serum sodium 133 mEq and serum potassium 3 7 mEq per liter

On May 6, while she was comatose, she was given a treatment with the coil kidney (This, her first dialysis, is not included in table 2 as it occurred prior to the period reviewed however, four months later she had a second dialysis that is included [case 3b]) Fifty grams of urea was removed by dialysis decreasing the blood urea level to 105 mg per 100 ml Two days later she responded to questioning, there was no more vomiting, and her appetite returned, there was slow further clinical improvement Blood pressure was controlled by administration of pentolinium Urinary output increased. Three weeks after dialysis the patient was discharged from the hospital She maintained a sense of well-being for three months and only occasionally had nausea and vomiting There was slight disturbance of the electrolytes and a mild degree of edema. The blood urea level was not over 120 mg per 100 ml Anemia necessitated transfusions, caloric intake was adequate She was well enough to manage her household of five children

In September, 1955, pneumonitis brought her back to the hospital and the blood urea level rose She was given a second treatment with the twin coil kidney on Sept. 8, 1955 (case 3, table 1) Sixty-six grams of urea was removed in six hours The blood urea level was reduced from 153 to 50 mg per 100 ml

Clinical improvement during the next two days was as usual, and she was discharged from the hospital, but a recurrence of cardiac failure and pneumonia prevented lasting benefit On Oct 6, 1955, she died

Goldner, Gordon, and Danzig[7] reported that, after one treatment each with the artificial kidney, one-third of their patients with chronic uremia showed improvement that lasted an average of six weeks The improvement in our patient lasted three months, longer than in any of the other four patients with chronic uremia mentioned in table 1, although all experienced temporary improvement The initial comatose state of our patient must not be considered as a "uremic coma" but rather as the result of the convulsions

Case 7 (Acute Uremia) —A 57-year-old man was admitted to Cleveland Clinic Hospital with hepatorenal syndrome He had become completely anuric seven days before admission and since had excreted only 30 ml of urine He complained of swelling of the abdomen, with constant dull aching pains of one week's duration, constant feeling of nausea, and periodic vomiting He had been exposed to dichlorodifluoromethane, which supposedly is nontoxic, but had not been exposed to any other chemical or toxic agent He admitted however that he had been drinking about 48 "shots" a week and may have drunk a little more, since his wife was abroad The blood pressure was 150/80 mm Hg The ocular fundi showed no hemorrhages or exudates The heart was slightly enlarged There was some edema of the sacral area, of the legs, and of the face Ascites and icterus were present, the liver was enlarged The patient was well oriented and answered questions correctly, although he was slower than under normal conditions He was treated with the twin coil kidney for seven hours (fig 3) The blood chemistry values improved as follows blood urea from 219 to 117 mg per 100 ml, plasma creatinine from 21 to 13 mg, and serum uric acid from 21 to 10 mg, HCO_3^- from 13 to 27 mEq per liter, Cl^- from 59 to 85 mEq, Na^+ from 133 to 139 mEq, and K^+ from 4 4 to 5 7 mEq The day after dialysis the urinary output was 450 ml, and it increased daily to more than 2,000 ml per day After a rise during the first days following dialysis, blood urea and blood creatinine levels fell to normal During treatment with the coil kidney the blood pressure rose to 190/80 mm Hg, but no therapy was necessary Oral administration of pentolinium was instituted after dialysis The patient watched the dialyzing procedure, he did not require sedation and did not experience any undesirable effects He was discharged 17 days after treatment At that time, the blood urea level was 36 mg and the plasma creatinine 2 6 mg per 100 ml Urinary output was approximately 2 liters per day Blood pressure was 130/90 mm Hg Edema and ascites no longer were present, and the edge of the liver was palpated just below the right costal margin Icterus had long since disappeared The patient felt very well and solemnly promised never to drink another drop of alcohol

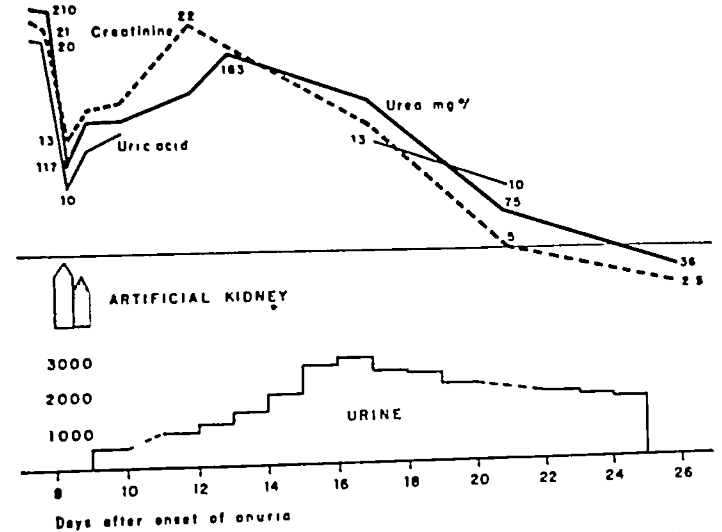

Fig 3 —Clinical course of patient (case 7) with hepatorenal syndrome Values of blood urea 210 mg creatinine 21 mg and uric acid 20 mg per 100 ml were acutely reduced during seven hours of treatment with the artificial kidney Clinical improvement followed, and urinary output reached 2 000 ml per 24 hours on the 15th day

This was an uncomplicated case of severe, acute renal failure Under the program followed, the patient's general condition immediately was improved by dialysis, so that the return of renal function could be awaited without anxiety

Case 8 (Transfusion Reaction) —A 40-year-old woman was hospitalized for a hysterectomy She was anemic and was given a transfusion, after which a reaction set-in and, according to her husband, she did not pass any urine until four days later In the meantime she was given more blood transfusions and other intravenous infusions She developed diarrhea She passed some urine once on the fourth day, the amount of urine passed after the fourth day is not known, but on the sixth day a hysterectomy was performed for fibroma After surgery the patient was completely anuric except for 20 and 30 ml of urine obtained by ureteral catherizations, which demonstrated that there was no organic obstruction She was given fluids intravenously and (erroneously) 60 mEq of potassium chloride She was flown to Cleveland and arrived late in the evening of the 10th day after the transfusion accident She was in acute distress, very short of breath and cyanotic, with pulmonary edema, generalized edema, and a gallop heart rhythm Blood pressure was 180/90 mm Hg An electrocardiogram showed high T waves but no signs of more severe potassium intoxication The blood chemistry studies showed the following values blood urea 312 mg and blood creatinine 21 mg per 100 ml and HCO_3^-, 6 5 mEq and K^+ 7 mEq per liter To save time the patient was given morphine, 10 mg subcutaneously, and lanatoside C (Cedilanid), 0 4 mg twice intravenously Pentolinium, 0 5 mg intravenously, reduced the blood pressure from 170/90 to 146/80 mm Hg Sodium lactate was given intravenously Since the abdomen was greatly distended, continuous gastric suction was started The next morning, 11 days after the initial transfusion reaction and onset of anuria, she was treated with the artificial kidney The day after dialysis she was markedly improved (fig 4) She was given further maintenance therapy with 500 ml of a 10% solution of invert sugar (Travert), with 20 mEq of sodium lactate plus hyaluronidase subcutaneously On the 13th day 550 ml of urine was obtained On the 14th day she was given a second treatment with the artificial kidney, after which her clinical condition so improved that her life seemed to be out of danger Urine output was 2 liters on the 20th day On the 27th day, blood

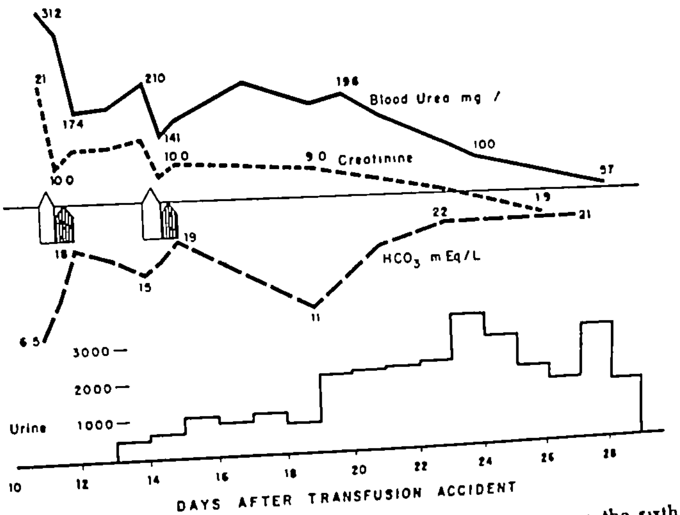

Fig 4 —Clinical course of patient in case 8 Hysterectomy on the sixth day after transfusion reaction was followed by renewed anuria Two treatments with the artificial kidney (one on the 11th and one on the 14th day) were required, owing to the seriousness of her condition Note the improvement of alkali reserve (HCO_3^-) with each dialysis

chemistry values were as follows blood urea 57 mg and creatinine 1 9 mg per 100 ml and HCO_3^- 21 mEq, K^+ 4 1 mEq, and Na^+ 139 mEq per liter Further recovery was uneventful

This patient was so seriously ill that dialysis probably saved her life

Summary

The advantages of a disposable coil kidney, when it becomes commercially obtainable, will be mainly in ease of operation and in elimination of time-consuming cleaning, sterilizing, and setting up Fiberglas screen and two loops of cellulose tubing are sewed together and wound into a stationary coil that fits into a large tin can The dialyzing surface area is 18,000 sq cm With a blood flow rate of 200 ml, the urea clearance is about 140 ml per minute The pressure required to pump the blood through the dialyzer at this rate is approximately 160 mm Hg Seven hundred fifty to 900 ml of blood is necessary to fill a "twin" kidney Pumps for blood and rinsing fluid and a tank still are required The initial investment need not be more than $800 Naturally there still remains the necessity to train doctors to employ the dialyzing procedures and to take care of the special problems of the patient with severe uremia Undesirable reactions in patients have been absent, except for a temporary rise in blood pressure during treatment. Clinical results are comparable with those obtained with the most effective artificial kidneys now available

2020 E 93 St. (6) (Dr Kolff)

The dialyzing unit, complete with tubing for connection with the patient, will be produced by Baxter Laboratories Morton Grove, Ill. Sigmamotor pump with motor and speed regulator assembled, is commercially available from Sigmamotor Inc. Middleport, N Y Hypro portable pump with rubber impeller no T F 3800 delivered with or without a ¼-hp capacitor motor with ¼-in shaft, is available from Hypro Engineering Inc., 700-39th Ave N E. Minneapolis

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INCIDENCE OF URINARY CALCULI AMONG PATIENTS IN GENERAL HOSPITALS, 1948 to 1952

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• *A questionnaire enlisting the cooperation of medical record librarians was used to determine the incidence of urinary calculi among patients admitted to or discharged from general hospitals For the country as a whole it was estimated that 9 47 persons per 10,000 population were admitted with this diagnosis during the year 1952*

Evidence of geographical variation was obtained, with rates of 19 25 and 18 42 from South Carolina and Georgia at one extreme and 5 81 and 4 31 from Wyoming and Missouri at the other There were also significant differences within states, the incidence in the northern part of Alabama, for instance, being less than half that in the southern part The incidence of calculous disease was lower among Negroes than among whites and lower among children than adults

The existence of "stone belts," or geographical areas in which cases of urinary calculi occur with unusual frequency, has been recognized as an accepted fact.[1] If such a relationship between geographical regions and the incidence of presence of urinary calculi does exist, it may have important etiological implications So far, however attempts to correlate the areas of higher reported incidence with factors of race, heredity, diet, climate, and soil composition have been notably unsuccessful[2]

In a review of the literature, we have found no general survey of the incidence of calculi in the United States A review of the incidence and treatment of urinary calculi, based on a poll of members of the American Urological Association, was compiled by Burkland and Rosenberg in 1955[3] Since members of this association are not uniformly located throughout the country in relation to population and since many small calculi are passed spontaneously by patients under the care of physicians other than urologists, this survey may not have given a true picture of the incidence of urinary calculi among the populace as a whole

A statistical compilation of the physical defects found in drafted men was published in 1920[4] This report covered the 2,510,791 men who were examined in accordance with the requirements of the Selective Service Act of World War I The ages of the subjects ranged from 18 to 30 years, but the majority were 21 to 30 years old The incidence of "nephrolithiasis" among this group was reported as 0 13 per 1,000 The geographical distribution of nephrolithiasis among these individuals is shown in figure 1 The statistical significance of this report is limited by many factors We do not know who made the diagnoses or what criteria were employed The purpose of the draft ex-

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From the Department of Urology Division of Surgery Bowman Gray School of Medicine of Wake Forest College amination was to determine the fitness of the individual for military service rather than to establish an accurate medical diagnosis The draftees were chosen in such a manner that they cannot be considered as representative of the population as a whole Figure 1 is presented, therefore, primarily to illustrate the necessity for applying modern statistical methods to research in clinical medicine[5]

Modern methods for establishing the diagnosis of urinary calculi, combined with the accuracy of hospital records, standardization of nomenclature, the availability of machines for sorting data, and the presence of trained personnel in medical record libraries, furnish an opportunity for studying the incidence of urinary calculous disease in the United States that has not previously existed in any country in the world These factors suggested the possibility of undertaking a survey of this subject that could meet the requirements for modern statistical analysis[6]

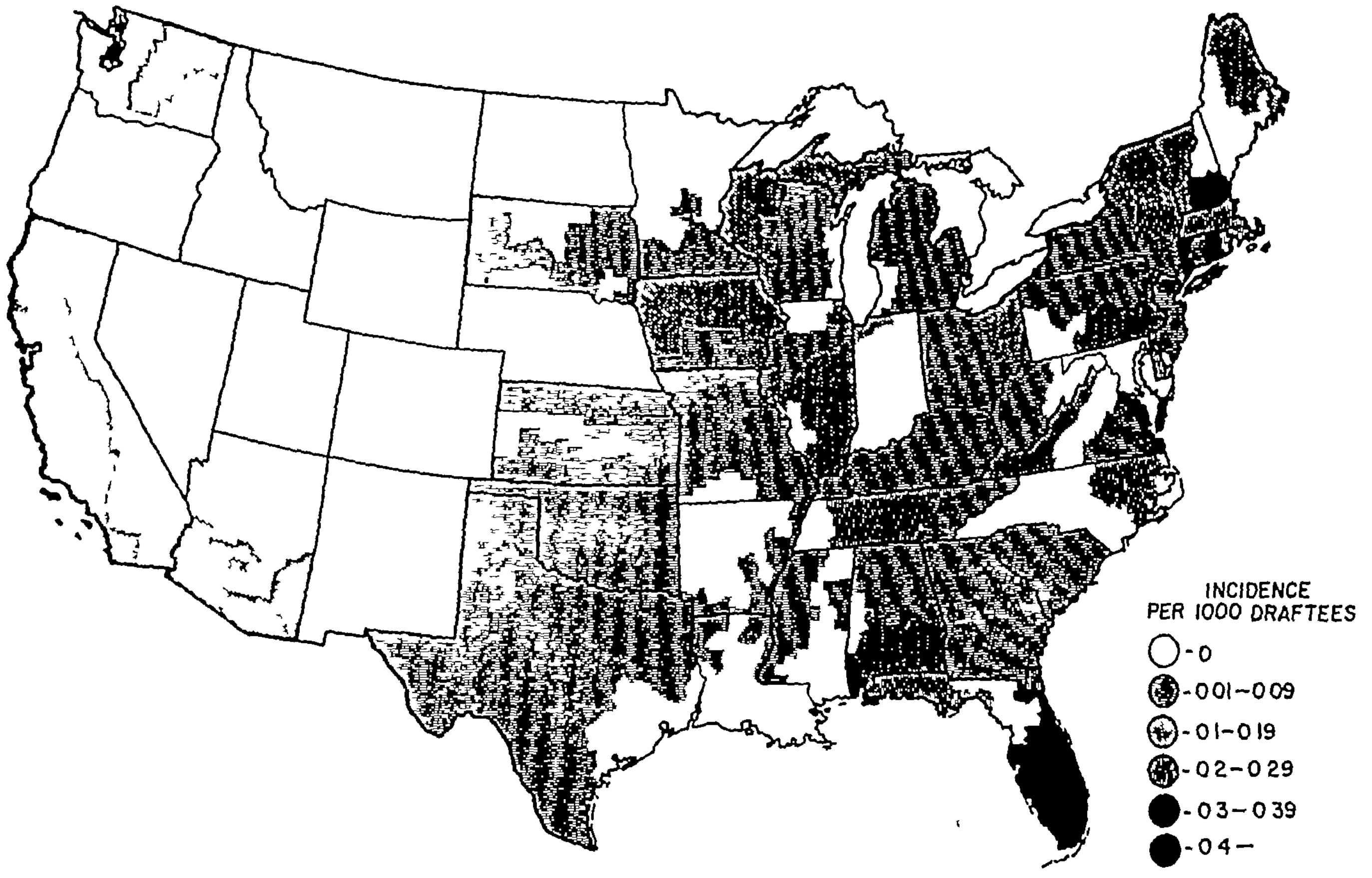

Fig 1 —Incidence of "nephrolithiasis in 2,510,791 drafted men examined during World War I Data from Love and Davenport[4]

Material

"Hospital Service in the United States," as published in The Journal,[7] was used as a reference In 1952 there were 4,924 general hospitals in the United States, representing 73 8% of all registered hospitals In the five years from 1948 through 1952, 81,266,421 patients were admitted to these hospitals, and this group was chosen as the population to be sampled A questionnaire was addressed to the medical record librarians in general hospitals selected from each of the 48 states and the District of Columbia In each state the hospital with the largest bed capacity received the first questionnaire, and smaller hospitals were selected in succession until 80% of the general hospitals in every state had received questionnaires The questionnaire had spaces for recording the total number of adult patients observed with renal, ureteral, bladder and urethral calculi in each of the five years 1948 to 1952 inclusive The total numbers of adult patients discharged from the urologic service and from the hospital were requested, since the diagnoses that appear on most hospital records are established at the time of discharge, and there was space for a separate listing of the total number of patients discharged from the pediatric service, together with the number of patients observed with calculi on this service

Results

Approximately 4,000 questionnaires were mailed, and 1,240 replies were received Only 537 replies were completed in detail for the entire five-year period, and these alone were utilized in analyzing the data Although these replies came from only 11% of the total number of general hospitals in the country, they cover 21 5% of all general hospital admissions for the five-year period Since reports covering less than 5% of the total general hospital admissions were received from Nevada and Nebraska, these states were excluded from statistical consideration Pediatric service patients accounted for less than 1% of all reported calculi, these were also excluded from statistical consideration

The data in table 1 are based on the reported diagnoses of calculi present anywhere in the urinary tract of adult patients Column 1 presents the adult population of each state according to the 1950 census Separate figures for admissions of adults and of children to the general hospitals under survey were not available, hence, column 2 is based on total hospital admissions per 1,000 population Column 3 shows the percentage of admissions covered by the survey and illustrates the minimum scope of the survey These percentages are based on total admissions to the surveyed hospitals, whereas columns 4 and 5 refer to adult patients only Columns 6 and 7 show the incidence of calculi in patients per 1,000 reported adult discharges for the final year of the survey (1952) and the mean incidence for the entire five years

TABLE 1 —*Adult Patients Discharged from General Hospitals in the United States with Diagnoses of Urinary Tract Calculi*

	Population (1950) 21 or More Yr of Age	Admissions/ 1,000 Total	% of Total Admissions Covered by Survey	Total Adult Patients Reported in 5 Yr: Discharged with Diagnosis of Urinary Calculi	Total Adult Patients Reported in 5 Yr: Discharged with Other Diagnoses	Calculi/1,000 Discharged Patients (Adults) (1952)	Calculi/1,000 Discharged Patients (Adults) in 5 Yr (1948-1952)
Alabama	1 747 759	77	23	2 129	271 922	8.8	7.8
Arizona	441 889	133	7	18	6 810	2.3	2.3
Arkansas	1 112,846	66	17	831	120 751	8.2	6.9
California	7,211,825	107	25	8,987	1 410,553	6.3	6.3
Colorado	844 743	147	35	1,360	283,618	4.5	4.8
Connecticut	1,382,373	112	27	2,942	316,104	9.9	9.2
Delaware	210,918	113	39	580	71,323	8 0	7 6
District of Columbia	583,335	164	57	2,389	351,995	6.2	6.8
Florida	1,823,513	97	30	4,578	413,55[illegible]	13.3	11 7
Georgia	2,006 825	82	17	3 138	216 757	18 4	14.3
Idaho	347 016	110	13	172	45,019	5.2	3 8
Illinois	5,938 601	115	19	5 191	818,983	6 9	6 7
Indiana	2,556 467	93	29	4,313	542,050	7.8	7.9
Iowa	1 694,619	110	21	1,996	270,841	7.5	7 1
Kansas	1,242,541	121	15	1,392	162,623	8.8	8 0
Kentucky	1 742,978	79	24	2,522	319 437	7.9	7.0
Louisiana	1,587,145	119	26	3,071	509,609	5 9	6 1
Maine	576,840	96	10	595	41 416	14.9	8 7
Maryland	1,527,089	95	21	1 411	250,271	6 0	5.6
Massachusetts	3,207 104	110	23	5,894	527,083	11.2	11 0
Michigan	4 103,606	107	20	4,282	678,582	6.3	6 4
Minnesota	1,910 153	135	29	3,290	553,698	6.9	5.9
Mississippi	1,208 023	72	13	1,239	103 493	11.5	11.8
Missouri	2,643 129	95	19	1,333	277 417	4 6	4.6
Montana	372,345	109	6	116	27 118	5 0	4 4
Nebraska	809,391						
Nevada	107 173						
New Hampshire	352 789	128	7	145	21 761	9.5	6.7
New Jersey	3,354 100	88	21	3 028	406,205	7.0	6.5
New Mexico	375 357	81	12	31	8,277	5 0	4 7
New York	10 374 446	107	25	13 160	2,056,925	6.6	6 4
North Carolina	2,811 071	58	21	4,992	373,332	12.5	13.2
North Dakota	376,560	134	23	587	93,516	5 8	6.2
Ohio	5,270 761	90	35	7 192	1,234,589	6.2	5.8
Oklahoma	1,382,108	93	17	1 151	171 609	7.9	6 7
Oregon	1,001 716	113	15	1 025	114 883	9 0	8.9
Pennsylvania	6,907,219	102	22	7,577	1 147,331	6.6	6 4
Rhode Island	538 124	85	33	1 114	119,283	9 1	9.3
South Carolina	1 170,877	90	14	2,331	152,072	16.9	15 0
South Dakota	401 146	144	31	587	137,867	5.3	4 3
Tennessee	1,978,548	87	17	2,877	400,558	10 4	10.6
Texas	4 787,225	113	17	5,450	711,990	7.2	7.6
Utah	353,845	105	42	729	122,300	5.9	6 0
Vermont	237,552	138	32	319	63,838	4 4	5.0
Virginia	2,025,339	100	13	2,343	214,264	12.4	10.8
Washington	1,559,966	137	30	2,071	465 123	4.8	4 4
West Virginia	1 177,878	105	15	1 106	171 715	7 1	6 4
Wisconsin	2,222 423	129	30	2,437	560 655	4.2	4.3
Wyoming	175,581	149	49	254	75 410	3 1	3 4
Av			21.5			7 4	7.1
Totals	97 403,807			124,353	17,338,985		

Figure 2 illustrates the geographical distribution of persons with urinary calculi on the basis of the above survey The boxed figures show the incidence of calculi in patients per 1,000 reported adult discharges from general hospitals The circled figures represent the number of total admissions, including pediatric, to general hospitals per 1,000 total population in 1950 During the five-year period of the survey, the mean incidence of calculi per 1,000 adult patients discharged from general hospitals was 7 1 for the country as a whole The shaded areas of the map cover those states in which the incidence of calculi in patients during the five-year period exceeded the national average by more than 33%

Table 2 was constructed in an effort to relate the incidence of admissions of patients with diagnoses of

TABLE 2 —*Incidence of Cases of Urinary Calculi Among Patients Admitted to General Hospitals in 1952, as Related to Population by States*

	Population (1950) All Ages	Total General Hospital Admissions	Admissions Reported by Survey	Patients Discharged with Diagnosis of Calculi	% of Calculi Among Reported Admissions	Estimated No. of Patients with Calculi Among Total Admissions	Calculated Admissions for Calculi/10,000 Population
Alabama	3 061 743	287 463	64,350	565	0.878	2,520	8.11
Arizona	749,587	107,394					
Arkansas	1,909,511	154 146	25,599	210	0.8203	1,264	6 62
California	10,586,223	1,272,448	312,657	1,982	0.6339	8 066	7.62
Colorado	1,325,089	209,684	74,592	339	0 4545	953	7 19
Connecticut	2,007,280	256,521	65 656	647	0.9854	2,517	12.54
Delaware	318 085	43 489	16,896	184	0 7973	346	10.89
District of Columbia	802 176	143 479	81 002	505	0.6234	894	11.02
Florida	2,771,305	330,268	99,848	1,331	1.3330	4 403	15 89
Georgia	3 444,578	345,598	57,555	1 057	1.8355	6,348	18 42
Idaho	588 637	76 445	9,665	50	0.5173	395	6 72
Illinois	8 712 176	1 074,978	198,344	1,362	0 6867	7,382	8 47
Indiana	3,934,224	419,834	121,178	939	0 7749	3,253	8.27
Iowa	2,621 073	297,850	62 708	472	0 7527	2,242	8.55
Kansas	1,905,299	258,609	38,835	308	0.8034	2,078	10.91
Kentucky	2,944,806	298,654	71 062	560	0 7882	2,353	7.99
Louisiana	2,683,516	355,780	93,580	525	0.5899	2,095	7.82
Maine	913 774	89 472	8 499	127	1 4943	1,337	14 63
Maryland	2,343 001	275,295	59 115	354	0.5988	1 648	7 04
Massachusetts	4,690,514	555,869	129,861	1 460	1.1243	6,249	13.32
Michigan	6,371 766	768,657	152,420	961	0.6305	4,815	7.56
Minnesota	2,982 483	445,636	128 078	851	0.6579	3,065	10.28
Mississippi	2 178,914	190 737	24,807	286	1 1529	2,199	10 09
Missouri	3,954,653	421,749	81 111	375	0 4623	1,949	4.81
Montana	591 024	100,983	6,217	31	0 4986	504	8.52
Nebraska							
Nevada							
New Hampshire	533,242	68 156	4 439	42	0.9462	645	12.09
New Jersey	4,835,329	477 107	101 434	713	0 7025	3,352	6.93
New Mexico	681 187	70 758	2,315	13	0.5616	397	5.83
New York	14 830 192	1 718 681	434,590	2,855	0 6569	11,292	7 61
North Carolina	4 061,929	466,620	99,574	1,246	1.2533	5 844	14.38
North Dakota	619,636	101,926	22,559	133	0.5915	603	9.57
Ohio	7,946,627	888 415	306,672	1,888	0 6156	5 469	6.88
Oklahoma	2,233,351	227 464	38,997	308	0 7898	1 789	8.01
Oregon	1,521,341	196,334	29 674	267	0.9013	1 769	11.63
Pennsylvania	10 498 012	1 139,639	250,654	1,658	0 6615	7,538	7 18
Rhode Island	791,895	77 772	25,371	231	0.9105	708	8 94
South Carolina	2 117 027	240 990	33 164	561	1 6916	4,074	19.25
South Dakota	652,740	98,711	30,212	160	0.5295	522	8 00
Tennessee	3,291 718	339,591	57 925	591	1.0332	3 482	10 43
Texas	7 711 194	999 040	169 180	1,208	0 7149	7 133	9.25
Utah	688 862	78 722	32 607	195	0.5897	464	6.74
Vermont	377 747	53 197	16,858	74	0 4395	234	6 19
Virginia	3,318 680	411,315	52,841	657	1.2434	5,114	15 41
Washington	2,378,963	353,994	105,340	509	0 4832	1 710	7.19
West Virginia	2 005,552	248 478	35 424	255	0 7111	1 767	8 81
Wisconsin	3 434,575	479,833	143 124	629	0.4395	2,105	6 13
Wyoming	290,529	53,181	25,968	79	0.3049	162	5 81

urinary calculi to the population of each state The final year of the survey was chosen for this comparison, and the percentage of persons with calculi among reported admissions (column 5) was proposed to show the estimated total number of patients with calculi among all general hospital admissions (column 6) The incidence of admissions of patients with diagnoses of urinary calculi among the total population was then calculated (column 7) For the country as a whole it was estimated that 9 47 persons per 10,000 population were admitted with urinary calculi to general hospitals On this basis the incidence in seven states was found to exceed the national average by more than 40% In descending order of greatest incidence, these states were South Carolina, Georgia, Florida, Virginia, Maine, North Carolina, and Massachusetts Connecticut was estimated to have an incidence of 32% above the national average, and New Hampshire had 27% above the national average Vesical calculi accounted for approximately 5% of all urinary calculi, and in no area was there noted a significant variation in the proportion of vesical calculi as compared with renal and ureteral calculi

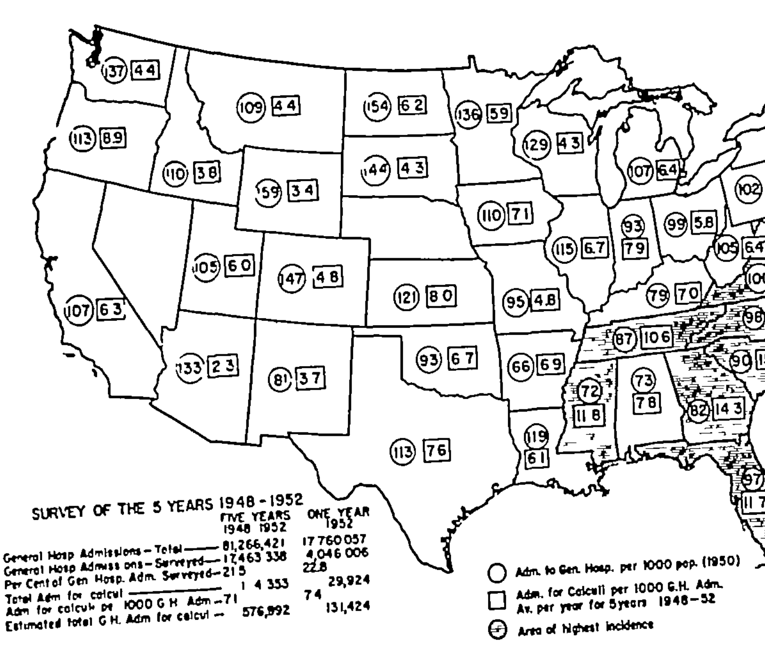
SURVEY OF THE 5 YEARS 1948 - 1952
FIVE YEARS 1948 1952
ONE YEAR 1952
General Hosp Admissions – Total 81,266,421 17 760 057
General Hosp Admissions – Surveyed 17,463 338 4,046 006
Per Cent of Gen Hosp. Adm. Surveyed 21 5 22.8
Total Adm for calculi 1 4 353 29,924
Adm for calculi per 1000 G H Adm 7 1 7 4
Estimated total G H. Adm for calculi 576,992 131,424
Adm. to Gen. Hosp. per 1000 pop. (1950)
Adm. for Calculi per 1000 G.H. Adm. Av. per year for 5 years 1948–52
Area of highest incidence

Fig 2 —Incidence of cases of urinary calculi among patients admitted to general hospitals during the years 1948 to 1952, inclusive

Interpretation of Results

Absolute conclusions as to the incidence of urinary calculi cannot be drawn from a survey of this magnitude The samples are obtained from the larger general hospitals, which have sufficient equipment and personnel in their record libraries for completion of statistical surveys These are usually medical centers, and it seems unlikely that patients with uncomplicated urinary calculous disease would be fairly represented in these institutions Approximately 85% of all patients with urinary calculi have a single small stone, which may be passed spontaneously or with the aid of cystoscopic manipulation[8] It seems likely that the majority of these patients are admitted to the smaller hospitals, which are not fairly represented in this report Neither do we have any data as to the number of patients who pass urinary calculi spontaneously and are not admitted to hospitals or, if they are admitted, are not discharged with a diagnosis of urinary calculi Other more obvious deficits in the survey are related to the interchangeable use of "admissions" and "discharges," and to the necessity of utilizing census figures, which are not strictly comparable to the surveyed population of adult patients discharged from general hospitals In spite of these deficiencies, the data obtained from the different states are considered comparable to a degree that would indicate geographical variations in the incidence of urinary calculi in the United States

Year-to-Year Variation in Incidence of Cases of Calculi —Comparison of columns 6 and 7 in table 1 shows that a relatively small variation is observed in each state when the final year of the survey is compared with the mean incidence for the five years The incidence of calculi in one year for each of the states in the survey was chosen at random and compared with the mean incidence for the remaining four years by setting up fourfold tables and applying the chi-square formula The tables were set up as follows (*a*) patients who had had calculi discharged in year X and (*b*) patients who had had conditions other than calculi discharged in year X, as compared with (*c*) patients who had had calculi discharged in four years and (*d*) patients who had had conditions other than calculi discharged in four years In 88% of these calculations there was not significant variation at the 5% level This finding was taken to indicate that, with five exceptions, there was no proof of more than chance variation in the incidences reported from year to year in any given state In the states of Maine, Georgia, Florida, Virginia, and New Hampshire, comparison of the incidence for the year 1952 with the mean incidence for the years 1948 to 1951 indicated a significant difference at less than the 1% level This finding indicates that the differences were very probably more than chance variations and suggests that the incidence of cases of urinary calculi may be increasing in these states

Geographical Variations—States were chosen as population units for sampling, because the classification of data on a county scale would have been too extensive an undertaking for the present survey Furthermore, patients with urinary calculi are much more likely to cross county than to cross state lines for hospitalization One notable exception was found in the Boston hospitals, which had the greatest incidence of cases of calculi in Massachusetts It seems likely that some of the patients there may have come from surrounding states, since Boston has been a center for research in the field of calculous diseases

As is to be expected, variations in the incidence of urinary calculous disease occur within state boundaries In a survey of patients admitted to the North Carolina Baptist Hospital, which is located in the Piedmont section of the state, it was found that the incidence of calculi among patients residing in the eastern lowlands was three times as great as in those coming from the western mountains It has also been reported that the incidence of calculi is greater in the Nashville Basin of central Tennessee than in the mountainous eastern section of the state [9]

These observations may have some bearing on the relatively low incidence of calculi in Alabama The Appalachian Mountains extend into northern Alabama, and the central area of the state is hilly, with extensive plateaus In figure 1 it can be seen that the incidence of calculi during World War I was found to be greater in the southern and coastal areas of Alabama than in the middle and northern regions This distribution was confirmed in the present study, in which it was found that 76% of the diagnoses of calculi reported from this state were from hospitals south of Montgomery The incidence in this area was 14 3 per 1,000 general hospital admissions, as compared with an incidence of 5 4 per 1,000 admissions to general hospitals north of Montgomery

Comparison of different regions of the country by grouping contiguous states together indicates a significant sectional variation in the incidence of urinary calculi Binomial tables were constructed for each of the following states, by listing (*a*) adults discharged who had had calculous disease and (*b*) adults discharged who had had conditions other than calculous disease The states were grouped into the following categories (1) South Atlantic Virginia, North Carolina, South Carolina, Georgia, and Florida, (2) Pacific Coast California, Oregon, and Washington, (3) Great Lakes Minnesota, Wisconsin, Michigan, Illinois, and Ohio, (4) Rocky Mountain Montana, Wyoming, Colorado, and New Mexico, and (5) New England Maine, New Hampshire, Massachusetts, Connecticut, Rhode Island, and Vermont. The binomial tables for all states in each group were then added, and the sums utilized to construct fourfold tables for the comparison of any two groups When the formula for chi-square was applied to these tables, there was a significant difference at less than the 5% level when any group was compared with any other

Race—It has been reported that urinary calculous disease is rare in the Negro race [10] While *no distinction* as to race appeared in the questionnaire, several hospitals devoted exclusively to the care of Negro patients returned questionnaires that were completed in detail The incidence of calculi reported in these hospitals was one-fifth to one-twelfth that reported from other hospitals in the same towns The lowest incidence among Negro patients was reported from the John A Andrew Memorial Hospital of Tuskegee Institute, Alabama, where only 3 diagnoses of urinary calculi were recorded among a total of 15,954 discharges from the adult service The highest incidence of cases of urinary calculi among Negro patients was reported from Freedmen's Hospital in Washington, D C, where 102 patients with urinary calculi were reported among a total of 52,093 patients discharged from the adult services, an incidence of 1 9 per 1,000

If the above indications are reliable, it is probable that the incidence among the white population in the shaded area of figure 2 is much greater than the statistics obtained from this survey would indicate The majority of American Negroes reside in this area, and in several of the Southern states more than 50% of the population is composed of Negroes [11]

Sex and Age—No distinction as to sex was made in the questionnaires In a recent review of 300 consecutive admissions for calculous disease to the North Carolina Baptist Hospital, it was found that 54% of the patients were males and 46% were females [12]

During the five years covered by the survey, 141 (26%) of the 537 hospitals reported one or more cases of calculi occurring in pediatric patients The total of 363 cases of calculous disease recorded among pediatric patients accounted for approximately 0 3% of all cases of urinary calculi reported for the five-year period The incidence of urinary calculi among pediatric service patients was highest in California, New York, and Indiana, but in no hospital did the incidence of pediatric patients with calculi exceed 1 2% of all recorded cases of calculi

These figures are taken to indicate that urinary calculi are relatively rare in American children In 1928, Hager and Magath [13] reported 2,195 cases of vesical calculous disease, 1 63% of which occurred in children under 15 years of age In 1951, Lattimer and Hubbard [14] found no cases of urinary calculi among 21,835 admissions to Babies Hospital in New York City These figures are in striking contrast to reports from oriental countries, which indicate a very high incidence of urinary calculi, particularly of vesical calculi among children Thomson [15] reported that 25% of 2,962 cases of vesical calculi observed in Canton, China, prior to 1920 were found in children under 10 years of age

Summary

Questionnaires dealing with patients admitted during the five years 1948 to 1952 inclusive were sent to general hospitals in every state Satisfactory responses were obtained from 537 hospitals, which had admitted 21 5% of the total patients admitted to all general hospitals Patients of no one state were found to be entirely free of urinary calculi, but there appeared to be a significant geographical variation in the incidence of this disease The greatest incidence was reported from the southeastern states, with the second highest incidence occurring in the New England states

Urinary calculi are relatively rare in children pediatric patients accounted for less than 0 3% of all cases of urinary calculous disease included in this survey It is anticipated that the present broad survey may serve as a background for more detailed investigations of the incidence of urinary calculi within the boundaries of individual states

Addendum

Since these data were prepared for publication, a report on the epidemiology of sarcoidosis [16] has indicated striking similarity between the geographical distribution of sarcoidosis, which occurs primarily in the Negro race, and of calculous disease, which occurs primarily in the white race

S Hawthorne Road (Dr Boyce)

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MULTIPLE SCREENING IN THE BALTIMORE STUDY OF CHRONIC ILLNESS

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and

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- *An opportunity to submit to a battery of tests designed to detect cardiovascular disease, pulmonary disease, visual and auditory defects, and certain metabolic disorders was offered to 7,000 urban adults The tests were taken by 2,024 people, and 1,281 were found to have one or more of the abnormalities concerned The program was carried out with the cooperation of local and state medical societies, and a complete copy of the results was sent to each screenee's physician A program of interviews and follow-up procedures was necessary to make sure of optimum results*

The study yielded valuable data as to the relative usefulness of various screening procedures The serologic test for syphilis was found to be a useful screening test for groups in which the prevalence of syphilis is high, the screening of men for anemia, on the other hand, was a relatively unproductive procedure As a screening test for heart disease, the chest roentgenogram proved to be of low sensitivity and did not discover as many previously unknown cases of heart disease as did the electrocardiogram Multiple screening was found to be a procedure of promise, but it will require modification and development before it can be widely used

Much of the current need for custodial care of persons with advanced chronic illness stems from the fact that much illness reaches an irreversible point before diagnosis is made and definitive treatment undertaken An effective approach to this problem must include consideration of procedures for earlier detection and diagnosis When progress is made in this area more people can receive treatment early in the course of disease when a better therapeutic response can be achieved

In its deliberations, the Commission on Chronic Illness concluded that case-finding of asymptomatic disease should employ all of the available techniques, the usefulness of which has been demonstrated The commission recommended that

> All persons should have a careful health examination including selected laboratory tests at appropriate intervals The medical and dental professions must specify the desirable scope and frequency of this examination, taking into account age, sex and other biosocial factors Such examinations must then be made practical and realistic, and be incorporated in the day by day practice of modern medicine and dentistry
>
> Screening tests for early case-finding are an essential device in prevention Used discriminately, these tests should be undertaken in physicians' offices, hospitals, industrial health services, schools and health centers Local health departments especially should foster efficient screening programs for large groups of the population

The commission also recognized that present techniques for early diagnosis leave much to be desired and that research is needed to develop valid and feasible tests that can be widely and inexpensively applied In considering screening programs the commission concluded that

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From the Commission on Chronic Illness

The successful operation of programs for making screening tests available to large groups of the population cannot be accomplished until a number of problems are solved Administrative research is needed to seek solutions to such questions as the appropriate relationship of mass screening programs to the practice of medicine, the creation of a demand for services after screening which cannot be fulfilled with existing resources, a standard of reasonable cost for screening There are other similar questions stemming from present-day traditions and attitudes about which administrative research should be undertaken

Published opinions on the value of multiple screening vary from enthusiastic endorsement[1] to complete condemnation[2] Although multiple screening programs have tested some two and one-half million persons in the United States in the past decade,[3] relatively little has been learned about their efficacy Perhaps the programs have yielded so little information because their organizers have concentrated on persuading the public to take the tests, without conducting a corresponding study of what happens to persons with abnormal screening tests who are asked to visit their physicians for further examination

In considering multiple screening as a device for early detection of chronic disease, the commission conducted studies in Hunterdon County, New Jersey, and in Baltimore Both studies included operation of experimental screening clinics for specified samples of the populations This article presents some of the findings of the screening phase of the Baltimore study, with particular emphasis on the follow-up of individuals for whom test results were positive in the more important screening tests

What Is Multiple Screening?

Screening tests are procedures that sort out persons who probably have abnormalities from those who probably do not[4] Well-known examples are the miniature chest roentgenograms for pulmonary tuberculosis and blood and urine sugar tests for diabetes mellitus Multiple screening is the use at one time of two or more screening tests to identify persons who probably have abnormal conditions and to refer them for diagnosis and, if indicated, for further medical care If conclusively proved to be of value, multiple screening may develop as an adjunct to the periodic physical examination procedure Thus it would enable the physician to concentrate his efforts on persons (with abnormal screening tests) who are more likely to have disease or abnormalities

Who Attended the Clinic?

The study, of which the Baltimore Multiple Screening Clinic was a part, has been described elsewhere[5] The total project had the approval of the local and state medical societies Invitations to attend the clinic were mailed to 7,000 persons, aged 17 years and over If the mailed invitation produced no response, it was followed by a phone call or home visit if necessary These 7,000 persons were the less disabled members of a sample chosen by the census bureau as being representative of the Baltimore population Most of these individuals, when previously interviewed at home, reported that they were healthy or that they had only minor ailments A small number reported more serious conditions, for some of which they were under the care of their personal physicians

During the 10 weeks that the clinic was active, 2,024 (29%) of the 7,000 persons took the screening tests The age, sex, and racial characteristics of the screenees are expressed in table 1 as percentages of all those who were invited Table 1 shows that a greater proportion of white than nonwhite individuals attended and that a higher percentage of those between 25 and 54 years responded than in the younger and older age groups There was no consistent difference between the two sexes

Screening Tests

A committee composed primarily of practicing physicians advised the commission in selecting the tests A detailed description of the tests is given later in this report Briefly they consisted of (1) height and weight, for obesity, (2) self-screening questionnaire for heart disease, (3) six-lead electrocardiogram, (4) blood pressure determination, (5) visual acuity test, (6) hearing acuity test, (7) miniature chest roentgenogram for tuberculosis, heart disease, and other chest conditions, (8) test for urine albumin, (9) test for urine sugar, (10) test for blood sugar, (11) determination of hemoglobin level, and (12) serologic test for syphilis The tests were usually completed in one hour A dental examination, not used as a basis for referral, was also carried out in this period

TABLE 1 —*Number of Persons Attending the Screening Clinic, and Percentage of Those Invited Who Attended, by Age, Sex, and Race*

	Both Races			Both Sexes	
Age, Yr	Both Sexes*	Male	Female	White	Non White
All ages	2,024	922	1,096	1,562	429
	% Attending of Those Invited				
All ages	29.1	28.7	29.3	30.2	24.5
17-24	21.7	22.0	21.6	20.4	25.1
25-34	30.8	28.2	33.1	33.2	24.3
35-44	35.0	35.4	34.5	38.7	24.2
45-54	29.9	28.0	31.8	30.7	25.4
55-64	27.6	29.0	26.3	28.1	23.9
65-74	23.5	23.6	23.6	23.2	21.2
75 or over	12.2	17.2	9.4	10.8	16.7

* Includes sex and race unknown

Procedure After Tests Were Completed

Before leaving the clinic, each individual was interviewed by a public health nurse who explained the method of sending the results to the physician and to the screenee The nurse also emphasized that tests were not done for conditions that could be found only on physical examination

Four weeks later, a complete copy of all the test results, including a copy of the electrocardiographic tracings, was mailed to the screenee's physician Two days later, one of several letters was sent to the screenee If the tests were completely negative or if only a minor abnormality was present, the letter said so and did not urge a visit to the physician at the time but did recommend regular medical examinations at least once a year If a serious abnormality appeared to be present, the letter said that the person appeared to have a condition for which he should consult his family physician All letters emphasized that screening procedures do not replace the periodic physical examination

Screenees were classified as having a major abnormality when positive results were obtained in any of the following tests self-screening questionnaire for heart disease, electrocardiogram, determination of blood pressure, chest roentgenogram, test for urine albumin, blood and urine sugar tests, determination of hemoglobin level, and serologic test for syphilis Follow-up figures were sought on all persons with major abnormalities, unless they had marked on the questionnaire that they were already aware they had conditions that would produce the positive tests

To obtain the follow-up results, the staff got in touch with the screenee by mail, or by phone or home visit when necessary, to find out if he had visited his physician Of the 607 individuals who were referred on the basis of the above tests, 393 reported that they had consulted their physicians about the results In turn, the physicians of these 393 individuals were contacted The necessary information was obtained, by mail or by phone, from the physicians of 351 of the persons referred In comparing the results of the screening and follow-up steps, one must remember that 42% of the persons referred were lost to the study, either because they did not visit their physicians or because no report was obtained on the diagnostic examination.

General Screening Results

Thirty-seven per cent of all screenees had no abnormal test results, as shown in table 2 An additional 31% were regarded as having minor abnormalities only These persons had positive results only in the tests for obesity, hearing, vision, or glycosuria (without hyperglycemia) Thirty-two per cent of the screenees failed in one or more of the remaining tests Of these latter 652 persons, 45 had answered in the questionnaire that they were already aware of the condition at which the positive test was aimed The remaining 607 individuals were asked to visit their family physicians for further advice

TABLE 2 —*Screenees Classified by the Number of Abnormalities Found*

		% of	
	No	Total Screened	Total with Major Abnormality
Total persons screened	2 021	100 0	
No abnormalities	749	36 7	
Minor abnormalities only	629	31 1	
1 or more major abnormalities	652	32 2	100 0
1	431	21 4	66 6
2	140	6 9	21 5
3	55	2 7	8 4
4 or more	23	1 1	3 5

Individual Test Results

A detailed summary of the individual test results is given in table 3 The number of persons taking each test is not constant (column 1), since one of the tests was sometimes not done on an individual or the result was unsatisfactory for various reasons Although each person referred to his physician (column 3) did not indicate on his questionnaire that he already knew of the condition at which the positive test was aimed, a considerable proportion of the confirmed cases were stated subsequently by the physicians to be previously known to them

The people who benefit from the screening procedure, the yield of the tests, are the screenees in whom positive test results were confirmed for conditions previously unknown to their physicians (column 6) In reality, the benefit is theoretical for persons who may have conditions for which no specific treatment is available On the other hand, this loss in yield is probably counterbalanced by screenees whose positive test was not confirmed by diagnostic examination but who were found in the examination to have some other condition that would respond to medical treatment

TABLE 3 —*Summary of Screening Test Results and of Follow-Up Procedure*

		Positive Results			*Condition Confirmed*	
Condition for Which *Screened*	Persons *Screened* (1)*	Total (2)	Previously Unknown to Screenee (3)	Follow Up Completed with Physician (4)	Total (5)	Previously Unknown to Physician (6)
Hypertension	2 021	150	67	41	31	11
Heart disease (electro cardiogram)	2,020	247	194	128	43	16‡
Heart disease (x ray)	1,767	182	155	67	29	8‡
Heart disease (questionnaire)	1 898	113	78	42	17	6‡
Tuberculosis	1,767	34	28	16	2	2
Other chest *disease*	1,767	64	50	17	2	1
Proteinuria	1,946	88	79	37	2	2
Diabetes	1,916	15	14	9	5	4
Anemia	1,080	32	29	13	8	7
Syphilis	1,949	53	†	14	4	1
Obesity	2,021	106 abnormal and previously unaware of *condition*				
Impaired vision	2,006	590 abnormal				
Impaired hearing	2,016	76 abnormal and previously unaware of condition				

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* Column (1) excludes persons not receiving a test and those for whom a test result was unsatisfactory

† Screenees were not asked if they already knew they had syphilis

‡ Total of previously unknown heart disease cases found by all tests was 28

Blood Pressure —Blood pressure was taken with mercurial sphygmomanometers after the screenee had been reclining for five or six minutes The criteria for referral were as follows (*a*) above 150 mm Hg systolic and 90 mm Hg diastolic, if below 35 years of age, (*b*) above 160 mm Hg systolic and 96 mm Hg diastolic, if 35 to 50 years of age, and (*c*) above 170 mm Hg systolic and 100 mm Hg diastolic, if more than 50 years of age

In 31 of the 67 persons referred, presence of hypertension was confirmed Twenty of the confirmed cases were already known to the physicians, however This situation is readily understandable, since many physicians will not mention the presence of this condition to their patients Thus the patient may be wrongly referred by the screening clinic on the assumption that the doctor does not know of the condition The measurement of blood pressure, using higher levels for older age groups, appears to be a fairly satisfactory method of screening for hypertension Most screening programs have had similar satisfactory results[6]

Electrocardiogram—The three bipolar and three unipolar limb leads were taken while each screenee was reclining The cardiologist reading the tracings used the Framingham criteria of abnormality as a guide in classifying the result.[7] If the result was doubtful, the screenee was invited to return for a 12-lead electrocardiogram The 179 screenees with abnormal readings, and 15 with doubtful results who failed to return for their chest leads, were referred to their physicians for further examination In 43 of the persons referred, presence of heart disease was confirmed As with the blood pressure test, two-thirds of the confirmed cases were already known to the physicians The yield of new cases was almost entirely confined to those of persons over 45 years of age

As used in Baltimore the electrocardiogram discovered more previously unknown cases of heart disease than did the chest roentgenogram and questionnaire The bipolar and unipolar limb leads, when taken on persons in the older age groups, appear to be a screening test of some promise in detecting previously unknown heart disease Other studies[8] suggest that the use of the lead 1 tracing alone, while greatly simplifying the test and reducing its cost, results in a too-high proportion of false-positive results

Chest Roentgenogram (for Heart Disease)—A chest physician read the 70 mm chest films for heart abnormalities Because of suspect or abnormal readings, 155 individuals were referred to their family physicians In 29, presence of heart disease was confirmed, confined mainly to those over 45 years of age Only eight patients had conditions previously unknown to their physicians As used in the Baltimore clinic, the chest roentgenogram detected fewer cases of heart disease than the six-lead electrocardiogram One reason was the higher proportion of follow-up results completed with the electrocardiographic test. However, other programs[9] confirm the low sensitivity of the chest roentgenogram as a screening test for heart disease

Self-Screening Questionnaire—The self-screening questionnaire contained seven brief questions designed to obtain information on conditions that were already known to the screenee and to obtain the name and address of the family physician Two questions, found elsewhere[10] to have some degree of specificity in testing for cardiac disabilities, were used for referral when positive answers were given for both These questions were as follows 1 Do you ever have distress, pain, or an uncomfortable feeling in the chest while walking on the street or up inclines or steps? 2 While walking, are you forced to stop in order to rest? These questions were much less effective than the electrocardiogram in screening for heart disease The test result was more frequently positive in women, and all five confirmed new cases were in women. The use of questionnaires in other screening programs has usually given poor results[11] Only one study reports a more optimistic conclusion, and this does not appear justified by the findings of the study

Chest Roentgenogram (for Tuberculosis)—The chest physician read each film for tuberculosis and other chest conditions, as well as for other heart abnormalities A full-size film was taken at a later date when recommended When the large film confirmed the suspect finding or when the screenee failed to have the large film taken, the individual was referred to his family physician The yield of new active cases was low and the proportion of false-positive results high, as much more extensive chest x-ray surveys have already shown However the importance of early detection of tuberculosis justifies the widespread use of this screening test. The effectiveness of the chest roentenogram in screening for other chest conditions in the Baltimore clinic was poor

Urine Albumin Test—A sulfosalicylic acid test (with use of Bumintest reagent tablets) was used to determine presence of albumin in the urine A result of 1+ or more was used to indicate the need for referral. Of 37 screenees who consulted their physicians in only two instances was presence of proteinuria confirmed. This low yield of new cases and high proportion of false-positive results has been obtained in other screening programs[12] A urine albumin test does not appear worthy of inclusion in a multiple screening program

Urine Sugar Test—The test for urine sugar (with use of Clinitest reagent tablets) was carried out about 45 minutes after the screenee had taken an orange-flavored carbonated drink containing 50 gm of glucose In 54 screenees, the test gave a positive result of 1+ or more However, only 15 of these persons had tests with positive blood sugar results, and these persons were referred to their physicians as possible diabetics Other screening programs confirm the low specificity of the urine sugar test in screening for diabetes mellitus[13] Indeed, the urine sugar test appears to be unnecessary when a blood sugar test is carried out after the administration of glucose

Blood Sugar Test—A venous blood specimen was taken for the blood sugar test about 50 to 70 minutes after the glucose drink, and the true-glucose values were obtained by the Wilkerson-Heftmann method. When the one-hour value was above 160 mg. per 100 cc., the screenee was again tested at the end of the second hour In 33 persons, the tests were positive at one hour, and results were either confirmed above 130 mg. per 100 cc. or the persons were not retested at two hours Fifteen of these screenees had positive urine sugar tests and were regarded as probable diabetics Of the nine who were known to have consulted their physician, in five presence of diabetes mellitus was confirmed The yield of previously unknown diabetics was smaller than that obtained in other screening programs It seems likely that a number of diabetics with a high renal threshold were missed because referral was carried out only when the urine sugar test was positive

Hemoglobin Level—The hemoglobin level of the venous blood was determined by use of the copper sulfate specific gravity method Men were referred when the hemoglobin level was below 12 3 gm per 100 cc, women when below 11 0 gm per 100 cc The eight previously unknown cases of anemia were all in women Other screening programs[14] confirm that the screening of men for anemia is a relatively nonproductive procedure

Serologic Test for Syphilis—A serologic test for syphilis was carried out on each blood specimen A positive test usually resulted in referral for further examination, especially when the Treponema pallidum immobilization test, done in a proportion of screenees, was also positive Of the 53 persons referred, 45 were Negroes Fourteen consulted their physicians, who confirmed three previously known and one new case of syphilis This low yield is partly due to the small proportion of persons referred who consulted their physicians The results of selective programs, testing much larger numbers of persons, suggest that the serologic test for syphilis is a useful screening test for groups in which the prevalence of syphilis is high[13c]

Height and Weight—Because they were 30% or more above the central weight for persons of medium frame of the Metropolitan Life Insurance tables, 106 individuals were referred to their physicians Those between 20 and 29% above this weight were merely informed that they were moderately overweight No follow-up was carried out for this test, nor for the vision and hearing tests

Visual Acuity—The American Optical Company Sight Screener was used to determine visual acuity The results obtained while the screenee was wearing glasses (if any) determined the need for referral When vision in each eye was 20/40 or less, or vision in one eye was 20/50 or less, the individual was advised to obtain a more thorough examination to determine the need for glasses Using these criteria, 530 persons, slightly over one-fourth of those tested, were abnormal

Hearing Acuity—The test for hearing acuity was deliberately made more thorough than usual to obtain exact information on the prevalence of hearing difficulties in the population In brief, the screenee was advised to seek medical advice when the better ear had a hearing threshold averaging 30 db or more at frequencies of 500, 1,000, and 2,000 cps

Limiting Factors

A screening procedure may fail at any one of four points First, the screening test may perform so poorly that for considerable numbers of screenees the tests are wrongly classified as positive or negative This study can give no estimate of the false-negative results, i e, in individuals who have the disease but for whom tests are classified as negative Second, a large proportion of the screenees for whom the tests are positive may fail to go on for the diagnostic examination by their family physician In this study, no follow-up results were obtained on 42% of the persons referred Therefore, the proportion of wrong referrals tends to appear larger than it really is

Third, the diagnostic examination may be inadequate, so that the condition is not confirmed although it actually is present Other studies, particularly after diabetes detection drives,[15] suggest that, in a proportion of persons for whom the tests are truly positive, presence of the condition is not confirmed because of inadequate diagnostic examination This study can give no estimate of the diagnostic error Fourth, presence of the condition may be confirmed on diagnostic examination, but the person may fail to return for treatment or may have a condition for which there is no specific treatment These persons do not really benefit from the screening procedure, and they reduce the yield of the test Neither this nor other published studies have investigated this phase of the screening procedure

Summary and Conclusions

The results of the Screening Clinic of the Baltimore Study of Chronic Illness have shown that multiple screening is a procedure of promise, although some tests will require further development and study before they come into widespread use Multiple screening has other aspects, briefly mentioned here, that require further study to clarify the usefulness of the procedure

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Dean E Krueger and Marvin Glasser assisted in this study

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PELVIC FINDINGS IN THE ELDERLY INSTITUTIONALIZED FEMALE PATIENT

A GYNECIC SURVEY OF SIX HUNDRED EIGHTY PATIENTS

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• *Gynecologic examination of 680 women between the ages of 41 and 111 led to a classification of pelves into a fibrotic (556 cases) and an atrophic (124) type All instances of carcinoma, prolapse, and advanced cystocele, rectocele, and enterocele occurred in the atrophic type No malignancies were ever encountered in the fibrotic type*

Although 90 of these institutionalized women had complete urinary incontinence and 63 complete loss of bowel control, gynecologic symptoms were present in only 69 cases, and many patients who had no complaints were found to have striking abnormalities Among the many unanticipated results were the finding of complete procidentia among nulliparas and of a normal vulva in seven out of nine women over the age of 95 An estrogen effect was seen in the stained vaginal smears from four women over the age of 81 in the absence of estrogen therapy

The study disclosed many opportunities for improving the health and comfort of these patients and emphasized the need of the elderly woman for good nursing care, including careful pelvic hygiene

Recent statistics from the Institute of Life Insurance 1953,[1] indicate that the expectation of life at birth in the United States has increased rapidly for females, from 48 7 years in 1900 to 72 4 years in 1950 Applied basic research principles relevant to better clinical care for the aged, along with the discovery of antibiotic drugs, the sulfonamides, improved preventive and supportive therapy, newer anesthetic agents, and newly available methods to combat shock, oliguria, and coma, combined with earlier diagnostic procedures, have all contributed toward the goal of bringing greater numbers of the populace into the geriatric age category Thus the female life expectancy has increased by 24 years[2] since the turn of the century, whereas the time of the menopause or transition from the youthful physiological status to that of the rapidly aging state has remained the same There is an increasing awareness of the need for study of gynecic geriatric problems[3] It is an obligation of society to make available equal medical care to this aging population, and it becomes obvious we must become more aware of the medical and specialty problems in these oldsters

Material

In 1952, the gynecology service at Flower and Fifth Avenue Hospitals participated in conducting the gynecologic examinations upon all women being admitted to the new Bird S Coler Hospital and Home from the City Home and other municipal institutions There were 680 women examined in this first survey, conducted between July and October, 1952 These 603 white and 77 Negro patients had been institutionalized or hospitalized in other municipal institutions because they were aged and economically helpless or else afflicted with long-standing chronic diseases, such as multiple sclerosis, hypertension, sequelae to cerebrovascular accidents, generalized arteriosclerosis, diabetes, arthritis, old fractures, or other debilitating conditions complicating normal old age processes Our examinations and histories were confined exclusively to gynecologic and the immediate contiguous organs

TABLE 1 —*Age and Marital Status of Patients in Geriatric Survey*

Age Range Yr	No of Patients	No by Race		Marital Status	
		White	Negro	Married or Widowed	Single
Less than 40	4	2	2	1	3
41-45	4	2	2	2	2
46-50	5	4	1	5	0
51 55	20	14	6	18	2
56-60	36	32	4	24	12
61-65	59	50	9	40	19
66-70	98	78	21	60	38
71 75	148	138	10	101	47
76-80	121	116	5	84	37
81-85	88	84	4	65	23
86-90	64	56	8	54	10
91 95	24	21	3	18	6
90-100	7	5	2	6	1
101 111	2	2	0	1	1
Total (38-111 yr)	680	603	77	479	201

The age range in this first series of 680 patients was from 38 years to 111 years This age distribution and the social status of the patients is given in table 1 It will be observed that we have included 13 patients below the age of 50 years, primarily because the members of this small subgroup were even at these lower chronological age ranges already actually in need of rehabilitation because of genuine geriatric problems usually found in patients over 50 years of age Among these 680 women, 479 were married or had outlived their husbands The remaining 201 women had never married and could be properly regarded as "spinster" oldsters Oddly, we encountered only three women who had separated from their husbands in this entire group, and, since all these patients had borne children, we classified them as "married" to permit simpler gyne-

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cologic classification The parity distribution from the obstetric histories of those admitting having borne children is shown in table 2 One patient, aged 88 years, had the greatest number of children—17 full-term deliveries from 21 pregnancies—and she had outlived her entire progeny

TABLE 2 —*Parity of Patients in Geriatric Gynecology Series*

		Parity					
Age Range, Yr	No of Patients	Para 0	Para 1	Para 2	Para 3	Para 4 9	Para 10 or More
Less than 40	4	2	2				
41-45	4	3			1		
46-50	5	2	1		2		
51 55	20	14	2	2	2		
56-60	36	19	5	6	1	5	
61-65	59	33	9	7	6	3	1
66-70	98	53	16	9	7	13	
71 75	148	81	31	19	6	11	
76-80	121	63	21	17	5	13	2
81 85	88	43	10	12	9	13	1
86-90	64	26	10	7	3	12	6
91 95	24	12	3	3	1	5	
96-100	7	3	1	1	1	1	
101 111	2	1		1			
Total	680	[illegible]	111	81	44	76	10

In a review of the medical histories of these 680 patients, it was observed that 228 (33 5%) had prior major surgical or radiation treatment Among these previous surgical histories were 175 gynecologic and 53 general surgical operations In brief, three of every four patients had had prior surgery performed upon gynecic indications Fifty-nine patients, or 8 6%, had had prior hysterectomies Forty-three of the 59 patients who had undergone hysterectomy were in the age range of 61 to 80 years There had been 12 previous vaginal plastic operations, mostly for stress incontinence, and 10 of these patients had recurrent stress incontinence There had been nine prior hysteropexies or suspensions of the uterus, and in eight of the patients found with this history among the 61-to-85-year age range group the suspension operation had obviously failed, for in all eight cases the uterus was found in midposition or else retroverted Oddly, only 4 women in the entire group of 680 reported prior cesarean sections Additional prior operations included two tubal resections for ectopic pregnancy, two posterior colpotomies for drainage of pelvic abscesses, four prior bilateral tube ligations for sterilization, and one prior myomectomy, there were two instances of extensive radiation therapy for carcinoma of the cervix These latter two patients were 5 and 11 years removed from their last radiation therapy and were considered as having "arrested cases" Among the nine patients having colostomy, in three combined perineal resection had been done, while in one of the eight cases of breast resection a bilateral mastectomy had been done for carcinoma Nine of these 12 patients surgically treated for carcinoma of the large intestine or breast were considered surgically "cured"

Procedures Done in Survey

Every patient was given a complete gynecologic examination, in which we included, in addition to the prior general physical examination by the internists, a detailed reevaluation of the abdomen, the breasts, the urethra, and the anal canal and rectum, as well as a bimanual pelvic examination, with the patient on the lithotomy table We noted that in 10 cases the women had repairs of previous ventral hernias We discovered three previously unreported carcinomas of the breast, four direct inguinal hernias, and one femoral hernia, in addition to the pelvic findings mentioned hereinafter

In each instance, after our pelvic examination, we added to each survey sheet a general impression of the pelvic findings We classed these general findings into two main categories (1) a fibrotic and/or markedly atrophic pelvis or (2) a nonfibrotic type of pelvis In the latter group were those cases of increased degrees of pelvic relaxation, with large cystocele, rectocele, and prolapse In short, in this group, atrophy was present, but the usual underlying fibrotic changes were less apparent to palpation, and there were usually greater areas of epithelial surfaces present Cervical and vaginal smears were taken on all patients The smears were interpreted by a member of our staff having considerable experience in reading smears We agree with Scheffey and Lang[4] that "screening smears" must be read by one well trained in cytology interpretation

General Impression of Pelvic Status

We were unable to correlate, except in isolated instances, the parity history or prior gynecic surgical history with our expected pelvic findings To illustrate this point, we found that among the 680 patients were 556 women, or 81 7%, with markedly fibrotic pelves Among this group were patients who had never married as well as patients who had borne 4 to 10 children, hence there was no correlation There were 124 nonfibrotic but atrophic pelves (18 2% of the series)

TABLE 3 —*General Pelvic Findings in 680 Older Women*

Age Range, Yr	No of Patients	Fibrotic Type	Nonfibrotic but Atrophic Type	Estrogen Effect
Less than 40	4		4	3
41-45	4	3	1	2
46-50	5	2	3	1
51 55	20	12	8	4
56-60	36	22	14	3
61-65	59	37	22	5
66-70	98	69	29	1
71 75	148	124	24	1
76-80	121	110	11	2
81-85	88	83	5	1
86-90	64	63	1	2
91 95	24	23	1	1
96-100	7	6	1	1
101 111	2	2		
Total	680	556 (81 6%)	124 (18 4%)	27

that gave rather extensive evidence of damaged endopelvic fascial planes, but in this group were many women who had never married or borne children (for example, 355 women who had never borne children), yet among those were single women with complete procidentia

Stained Smear Report

The smear reports from the group with fibrotic pelves usually showed cellular detritus, leukocytes, or else a few basal or parabasal epithelial cells, with a predominance of keratinized squamous epithelial cells, if and when the latter were present The greater number of women with adhesive vaginitis or vaginal synechia were classed in the group with fibrotic pelves, as one would anticipate However, it was of real interest to note that, among the smears of those patients classed in the group with nonfibrotic but atrophic pelves, there were found parabasal cells and leukocytes in addition to basal cells and that there were 27 cases wherein cornified squamous epithelial cells were preponderant In brief, in 27 patients, or 3 9%, of this geriatric series an inexplicable estrogen effect was shown in stained smears None of these patients had received recent estrogen therapy to our knowledge While this could well be considered an adrenal estrogen effect in the 10 patients under the age of 55 years, it seems incredible that in the remaining 4 patients, all over the age of 81 years, definite cornification was found in stained smears Clinically the mucosal surfaces of these four patients gave the appearance of tissue age greatly similar to that of women in their fifth decade It is noteworthy to reemphasize that in all of these 27 patients whose smears showed cornification the smears fell into the broad general group we had categorized as the nonfibrotic but atrophic group In this smaller group we discovered four instances of cervical carcinoma, three of clinical stage 3 and one of clinical stage 0 One of the clinical stage 3 carcinomas proved to be an adenocarcinoma of the cervix None of these patients had evinced a single symptom, and the cervical neoplasms were discovered and diagnosed by the survey pelvic examination and screening smear studies In all instances the diagnoses were confirmed by biopsy prior to the initiation of active radiation therapy

Among all the smears studied were those of 88 patients, or 12 7%, which showed many red blood cells, though in only 4 patients of this group were atypical or actual neoplastic cells found Thus the presence of basal cells with many red blood cells is not too suggestive of neoplasm, but rather it is suggestive of adhesive vaginitis or trauma to atrophic mucosa in taking the smears All positive smears that did show neoplastic cells also showed red blood cells Toward the end of our survey and in our clinical application of our two broad general categories we became aware of a most important negative finding—we had encountered no malignancy in the truly fibrotic pelves We were then lead to the obvious question Why does a dominance of fibrotic tissue occur in the patient not exhibiting pelvic malignancy? We noted also that there was an apparent parallelism between fibrotic pelves and fibrotic breasts, and it was of interest to report that the four discovered cases of carcinoma of the breast fell into the pelvic series categorized as nonfibrotic but atrophic Because of these observations, it was our decision to subject and evaluate each single area of the pelvic examination to an especially detailed study The findings follow

The Vulva in Older Women

Morris,[3a] of Manchester, stresses that but few of aged females report gynecologic symptoms and that their tolerance" of symptoms is "surprising" In this we agree completely Table 4 illustrates the bulk of the exact findings of the status of the vulva in the pelvic examination in 680 institutionalized women in the geriatric group Only 36 patients could be considered as having a normal vulva, while among 652 women, or 95 8%, senile or atrophic vulvitis was present Among these was a series of 149, or 21 9%, showing, in addition, simple vulval erythema superimposed upon the atrophic mucosal and dermal changes In 117 women the atrophic changes were so advanced as to exhibit a mild conglutination of the vestibular walls, while in the remaining 20 women the atrophy was so extensive as to form true vulval synechia adhesions Eight cases of leukoplakia of the vulva and one case of true kraurosis vulvae were found Severe intertrigo of the vulva was seen in 10 instances, and 6 cases of diabetic vulvitis were extant among those 149 patients having erythema of the vulva There were nine vulval tumors encountered, one case each of condyloma acuminatum, papilloma sebaceous cyst, fibroma, and labial inclusion cysts, a sweat gland tumor, and a single case of carcinoma of the perineal body There were two lipofibromas of the vulva, measuring 3 and 4 cm

TABLE 4 —*Vulval Findings in Older Women*

Age Range Yr	No of Patients	Normal Vulva	Atrophic Vulvitis	Vulval Erythema	Leukoplakia	Vulval Conglutination and Synechia	Vulval Tumors	Other Diagnoses
Less than 40	4	3	1					
41-45	4	1	2	1				
46-50	5	3	2					
51-55	20	9	8	4	1		1	
56-60	36	8	32	18		5	1	2
61-65	59		59	22		11	2	2
66-70	93		98	20		20		6
71-75	148		148	14	1	32		3
76-80	121		121	13	1	17	1	12
81-85	83		80	26	3	12	2	
86-90	64		62	19	1	12	1	5
91-95	24		24	7	1	4	1	2
96-100	7	7	3		3			
Over 100	2		2	2		1		
Total	680	24 (3.5%)	652 (95 8%)	149 (21 9%)	8 (1 1%)	117 (17.2%)	9 (1.2%)	32 (4 6%)

respectively The largest vulval tumor was the fibroma It was symmetrical and measured 8 0 cm in diameter The carcinoma of the perineal body was 5 0 cm in diameter

One patient had marked hypertrophy of the clitoris Two patients, aged 65 and 75 years, exhibited rather marked vulval edema without any suggestive etiology There were five patients who had postoperative findings, such as extensive scars and complete absence of labia and genital hair In one patient the perineal body was completely absent, with cloacal formation from prior obstetic injury One Negro patient had rather extensive vitiligo We were able to demonstrate but a single case of monilial vulvitis While a summary of the vulval findings would indicate that simple atrophy was the chief finding, actually in about 1 of every 4 cases there was an associated low-grade infection, and, among these, 1 in every 14 women had a severe grade of intertrigal infection In nine patients with vulval tumors there was a ratio of one malignancy to eight benign neoplasms Lack of proper pelvic hygiene was probably responsible for 117 cases of conglutination effect among the 652 patients with senile atrophic vul-
only 24 patients could one describe the vulva
This finding suggests that simple inspection
ost important in an evaluation of the external genital tract of the elderly woman

Contiguous Pelvic Organs

While we did examine with care all contiguous pelvic organs, including the urethra, the urinary bladder, the anal canal, and the rectum, we restricted this initial report solely to the female genital tract findings We did note that 120 women, or 17 6%, were found to have a definite low-grade paraurethral infection, Skene-gland infection, or a proximal anterior urethritis Among these patients were 101 women with a patulous or pouting urethral meatus, and in 86 patients there was an associated urethral caruncle These latter two conditions occurred in greater frequency in women over 70 years of age In 119 cases, or 17 5%, there was either stress or complete urinary incontinence We agree with Heckel[5] that, among the aged, cystitis should be considered a symptom rather than a disease process

Approximately 9 of every 10 older women had normal bowel continence (539 patients, or 86 6%), though in 63 women, or 9 2%, partial incontinence was present About every third patient (196 women, or 28 8%) was troubled with external hemorrhoids, though only 23 patients, or 3 4%, had internal hemorrhoids Nine patients had had a prior colostomy or combined perineal resection (1 3%, or approximately 1 in every 76) Incidental findings included one instance of anal fibroma, one of anal stricture, three of markedly patulous anal canals, and one of megacolon, wherein evacuation occurred only once every 14 to 21 days Two patients had associated decubital ulcers impinging on the perianal region One patient had a carcinoma of the perineal body, involving the perianal tissues

TABLE 5 —*Vaginal Findings in Older Women*

				Degree of Atrophy			Structural Changes in Wall											Conditions	
							Anterior Wall—Cystocele, Grade					*Posterior Wall—Rectocele and Enterocele, Grade*							
Age Range, Yr	No of Patients	Normal Vagina	Atrophic or Senile Vagina	Adhesive Vaginitis	True Synechia Formation	Non Specific Vaginitis	1	2	3	4	Prolapse	1	2	3	4	Enterocele	Post operative	Other
Less than 40	4	3	1		1	1												
41-45	4	2	2			1												
46-50	5	4	3						1								1	
51-55	20	2	17		4	1	8	2				13	2	2	2			
56-60	36		36	2	3	1	4	5	1	1		15	9	3	1			
61-65	59		59	6	10	6	5	9	4	1	1	27	10	6	2			2 intact hymen
66-70	98		98	3	24	9	8	10	4	2	1	39	7	13	6	1	1	1 cloaca
71-75	148		148	26	30	9	4	17	5	3	3	35	8	4	4		3	
76-80	121		121	15	33	6	4	12	8		1	20	6	8	5		2	1 Trichomonas
81-85	88		88	8	31	9	4	9	5	2	2	17	5	2	3		1	
86-90	64		64	5	20	12	3	6	3	1	1	9	1	1	1		2	1 moniliasis
91-95	24		24	2	5	4	1	3		1	1	3			1		1	
96-100	7		7	1	4	2				1	1	1					1	
101-111	2		2		1													
Total	680	11	670	68	166	61	44	72	31	12	11	185	48	34	25	1	12	5

The Vagina in Older Women

During the survey, the amount and degree of atrophic change, the number of patients exhibiting infection, and the number showing definitive structural changes in the anterior and posterior vaginal walls were recorded (table 5) In only 11 cases were the vaginal walls classed as normal, while in 670 cases, or 98 5%, there was some degree of senile or atrophic vaginitis In 436 of these cases it was characterized by thin and pale mucosal surfaces Simple adhesive vaginitis was present in 68 patients or 10%, of the series In 166 cases, or 24 4%, the atrophic changes had progressed however, to the point of actual synechial formation wherein the mucosal surfaces had ulcerated and subsequently healed to form vaginal bands or synechias, thereby giving considerable constriction to the vaginal diameters In many of these cases it was difficult to expose the cervix to take smears Nonspecific bacterial vaginitis was present in 61 cases, or 8 9% We were able to find only one case each of Trichomonas vaginalis vaginitis and monilial vaginitis, in two women aged 80 years and 90 years respectively

There were 12 patients on whom prior vaginoplastic surgery of one type or another had been performed Anterior vaginal wall herniation, present as cystocele, was found in 170 cases or 25% (one in every four patients) As expected the bulk of these anterior vaginal wall relaxations were minimal to moderate in degree, there were 44 cases of grade 1 cystocele and 72 cases of grade 2 cystocele, though only 31 cases of grade 3 and 12 cases of grade 4 In 11 instances the anterior vaginal wall was prolapsed with uterine procidentia It is a well-known observation that smaller size cystoceles are frequently more symptomatic than those of the larger size, for often these latter have an acute angulation that produces an exaggerated posterior urethrovesical angle, hence they exhibit fewer symptoms

As was anticipated, the frequency of posterior vaginal wall relaxation was greater There were 296 women, or 43 5%, in the series who exhibited some degree of rectocele They were distributed in the usual descriptive categories 188 cases of grade 1, 48 cases of grade 2, 34 cases of grade 3, and 25 cases of grade 4 One patient, aged 70, had a definite enterocele There were apparent imperforate hymens in two single women, each aged 65 years Undoubtedly the carunculae myrtiformes had become ulcerted and subsequently healed to form hymenal synechias, giving the clinical impression of intact hymens These were perforated to obtain vaginal smears One patient had complete loss of the posterior vaginal wall and the urethral wall and had the usual postobstetric cloaca The distribution of pelvic findings on the vagina is shown in table 5

The Cervix Uteri in Older Women

All but 87 patients exhibited some degree of atrophic changes in the cervix uteri In 340 cases, or 50%, simple atrophic changes were present, but in 253 women, or 37 2%, the degree of atrophy was relatively advanced, producing the so-called button cervix of old age[6] In most of the latter groups there was extant some degree of synechia between mucosal surfaces of the fornices to the portio vaginalis mucosa of the cervix In such cases the synechia all but obliterated the vaginal vault and cervix itself (table 6)

TABLE 6 —*Cervical Findings in Older Women*

Age Range Yr	No of Patients	Chronic Cervicitis	Normal Atrophic Cervix	Button Cervix Synechia Fornices	Hypertrophy of Cervix	Erosion and or Ectropion	Cervical Polyp	Prior Surgery: Cervix Absent	Prior Surgery: Stump Only	Cancer Stage	Other Condition
40 or less	4	1	1		3	1					
41-45	4	1	3		1						
46-50	5		4		1						
51-55	20	4	10	2	2	1	1	2	1	1-3	1 cervical fibroid
56-60	46	4	30	2		2	1	3	1		1 cervical fibroid
61-65	59	4	41	8	2	2		4		1-3	Cancer found in survey
66-70	93	7	55	28	2	1	1	4	1	1-0	1 cervical fibroid cancer found in survey
71-75	148	6	65	61	2	2	4	3	4	1-3	1 cervical fibroid cancer found in survey
76-80	121	7	44	65	1	1	1	2	1		1 cervical fibroid 1 prolapse with ulcer
81-85	83	9	42	40	2	3	4		4	1-0	1 cervical fibroid
86-90	64	5	30	32	1		1		1		1 cervical fibroid
91-95	24	3	11	10	2					1-3	1 cervical fibroid cancer found in survey
96-100	7		3	4							
101-111	2		1	1							
Total	680	51 (7.5%)	340 (50%)	253 (37.2%)	18 (2.61%)	13 (1.91%)	13 (1.91%)	19 (2.79%)	13 (1.9%)	6 (0.88%)	

In 51 patients, or 7 5%, of the series there was chronic cervicitis, wherein a heavy bead of viscid mucopurulent discharge was visible at the external cervical os Four of these patients had an associated chronic Nabothian cystic degeneration of the cervix In 18 instances or 2 6% there was a hypertrophy of the cervix There were 13 cases each, or 1 9%, of erosion and/or ectropion (everted endocervical canal mucosa) and cervical polyps None of the cervical polyps exceeded 1 cm in diameter, and all were removed by simple biopsy technique All were examined pathologically None were found to be malignant We agree with Buxton[7] that there should be minimal cauterization after removal of polyps because the atrophic mucosa tolerates cautery poorly In 19 women, or 2 8%, the cervix was absent, and there were 13 patients who had only a cervical stump because of prior hysterectomy of the subtotal type Seven women were found to have small cervical fibroids, the majority of which had undergone marked calcification These did not exceed 0 5 cm in diameter

Most important of all findings was cervical carcinoma in six cases, or 0 8%, four of these were discovered during this routine survey Three cases were of stage 3, exophytic type, while one case was found to be stage 0

The Corpus Uteri in Older Women

All patients in the series (680 women), except 22, were subjected to a bimanual pelvic examination There were 22 patients who either refused, became uncooperative or else were much too obese for an adequate bimanual pelvic examination Among the 668 women, or 96 8%, who were so examined, the fundus of the uterus was found to be small and atrophic in 533 instances, or 78 3%, and large, fibrotic, and atrophic in 39 cases, or 5 7%, while actual uterine fibroids were found in 24 cases, or 3 5% The fibroids were variable in size, from small (1 cm) calcified nodules to multinodular masses filling the true pelvis In every single case of fibroids the patient had refused to have previously recommended surgery done Among the 39 large fibrotic but atrophic fundi were undoubtedly a few of the diffuse intramural type of fibroids that could not be identified as such In these patients, however, the correlation was higher in regard to their parity than to a prior history of fibroid symptoms (table 7)

Table 7 —*Uterine Findings in Older Women*

Age Range Yr	No of Patients	Unknown	Small Atrophic Fundus	Large Atrophic Fundus	Uterine Fibroids	Prolapse, Degree 1	Prolapse, Degree 2	Prolapse, Degree Complete	Fundus Absent	Other Conditions
Less than 40	4				2					1 adherent retroversion
41-45	4		1	3						
46-50	5		1	1	1				2	
51 55	20		13	2					5	
56-60	36	2	27	3	2	1	1			2 adherent retroversions
61-65	59	3	41	4	1			1	9	1 pyometra
66-70	98	5	71	6	6			2	12	
71 75	148	2	121	7	2		1	3	14	
76-80	121	4	98	7	3	1	1		8	3 adherent retroversions, 1 pyometra
81 85	88	2	73	4	3		1	1	5	
86-90	64	4	58	1	1			1	3	
91 95	24		21	1	2			1	1	
96-100	7		6		1			1		
101 111	2		2							
Total	680	22(3 23%)	533(78 3%)	39(5 73%)	24(3 52%)	2(0 29%)	4(0 58%)	10(1 47%)	59(8 67%)	8(1 17%)

Among 59 women, or 8 6%, the fundus was absent, undoubtedly because of prior surgery There were six cases of densely adherent retroversion and two cases of pyometra There were 16 patients who showed some degree of uterine prolapse 2 with stage 1, 4 with stage 2, and 10 with true procidentia or complete prolapse In the vast majority of cases the atrophic uterus was found in midposition

The Adnexa and Parametrium in Older Women

In this series of 680 geriatric gynecologic patients there were found five cases of adnexal masses, four of which were cystic in nature One cyst, in a woman 50 years of age, was the size of a full-term pregnancy A second ovarian cyst, the size of a six-month pregnancy, was present in a 55-year-old patient Each was reported as a benign pseudomucinous cystadenoma after subsequent removal The remaining three ovarian tumors occurred in women aged 65, 66, and 70 years respectively One was a serous cystadenoma, one a dermoid cyst, and one a simple fibroma of the ovary None were considered malignant The incidence of ovarian tumors in our series was then 5 in 680, or about 1 in each 136 patients examined These findings confirm Randall's findings [3a] that ovarian tumors are more frequently benign in patients over 50 years of age

There were 11 cases of parametrial thickening In six instances it was the result of postoperative thickening, and in five instances it was related to an earlier history of prior colpotomy, for pelvic abscess in two cases and chronic pelvic inflammatory disease or else prior radiation therapy in three other cases

Gynecologic Symptoms

As noted by Morris, [3a] these elderly patients exhibited a considerable "tolerance" to their admitted gynecologic symptoms Only five patients, or 0 7%, complained of a mass, though it was grossly present in 10 cases of procidentia and was present as a mass in 9 vulval tumors and in 24 fibroids, 2 of the latter filling the true pelvis entirely Patients with ovarian tumors had no complaints, other than two who complained that they were "fat" In the entire series of 680 patients, only 69 women, or 10 0%, complained of any symptoms Leukorrhea was noted as a complaint in 48 cases, or 7%, metrorrhagia in 16 cases, or 2 3%, and a tumor mass in only 5 cases (table 8)

Treatment Principles

This survey emphasizes primarily the need for the elderly woman to have good nursing care, including careful pelvic hygiene It is our considered belief that the majority of cases of vulval erythema could have been prevented simply by more frequent bathing of the external genitalia We agree with Shelton,[2] Brown and Bradbury,[8] and Masters[9] that infected atrophic mucosal surfaces of the lower genital tract may well be treated with topically applied estrogens or even small does of estrogens given orally and/or estrogen-androgen therapy prior to topical application of sulfonamide or antibiotic agents The cytological picture of the mucosa without treatment tends to revert to that of childhood O Conor and Rhodes[10] stress the importance of occasional urethral dilatation, with rare use of transurethral resection of obstructing tissue at the bladder neck to control urinary tract infections in elderly women The intermittent use of systemically given antibiotic agents is useful in supportive care of the infected neurogenic bladder

Serious structural defects, including symptomatic cystocele, procidentia, rectocele, enterocele, or prolapsed vaginal vaults, can be controlled with conservative surgery with considerable safety, especially when one employs local and/or regional anesthesia We agree with Jeffcoate[11] that in a large percentage of cases of pruritus vulvae there are but few demonstrable etiological factors and that, therefore we should use conservative therapy in such instances Pettit and associates[6] believe that we should build up atrophic lower genital tract tissues with estrogens prior to biopsy for study and subsequent therapy

Like Schauffler,[12] Kosmak,[13] and Beecham,[14] we agree that pelvic surgery is not contraindicated but that these women with prolapse or unusual herniation of endopelvic fascial planes must be treated like cardiac patients, that is, they must be treated more specifically in relation to their functional capacity and their vitality than in relation to any arbitrary age limit Prolapses, infection, fibroids, and ovarian tumors should be treated as specific problems, not according to the chronological age of the patient Obviously one must seek to employ more supportive therapy in the aged woman, such as vitamin supplements, hormones, dietary care, and specific supportive drugs, such as digitalis, in the preoperative phase The choice of anesthetic or analgesic agents must be carefully individualized and evaluated for each case The postoperative care must be meticulous Above all the prime requisite before and after gynecic surgery is good nursing care amplified with the individualizing of the physician s attentive supervision

TABLE 8—*Gynecologic Symptoms in 680 Older Women*

Age Range Yr	No of Patients	Leukorrhea	Metrorrhagia	Mass Present	Subtotal Having Symptoms	
					No	Per Cent
Less than 40	4					
41-45	4					
46-50	6					
51 55	20					
56-60	36		1		1	2 77
61-65	59	3	1		4	6 78
66-70	98	2	2		4	4 08
71 75	148	2	4		6	4 05
76-80	121	6	2		10	8.24
81-85	85	11	2	2	15	17 0
86-90	64	10	1	1	12	18 75
91 95	24	10	2	1	13	54 16
96-100	7	2		1	3	42.85
101 111	2		1		1	50
Total	680	48(7%)	16(2.4%)	5(0 74%)	69(10 2%)	

Comment

The findings in 680 institutionalized elderly women examined during a geriatric gynecic survey conducted at the Bird S Coler Hospital and Home and the City Home revealed interesting data Atrophic and senile changes were dominant as predicted In this series were 603 white women and 77 Negro patients Their ages ranged from 38 to 111 years, with the greatest number, 148, falling into the age group 71 to 75 In this series, 479 women were married or widowed and 201 were single Ten women had each borne 10 or more children, 111 women had borne one, 84 women 2, 44 women one, 44 women 3, and 76 women 4 to 9

In this series, 59 women, or 8 6%, had had a prior hysterectomy Myomectomy had been performed on one woman, 9 women had had suspension operations, 4 women had had previous cesarean section, and in 12 women some type of vaginal plastic operation had been done Twelve patients had one or both ovaries removed, exclusive of the 59 instances of hysterectomy in which the fate of the ovary was not known Two patients had previous radiation treatment for carcinoma of the cervix

The pelves were classified into two major general types the fibrotic type, 556 cases, and the nonfibrotic but atrophic type, 124 cases It was particularly interesting to note that all instances of carcinoma, prolapse and advanced cystocele, rectocele, and enterocele fell into the latter group Estrogen effect was noted in 27 cases, or 3 9% Incredible as it seems, the estrogen effect was noted in stained smears of four women over the age of 81 years, though none had received estrogen therapy We were especially impressed that in the general category of fibrotic pelves, no malignancy was encountered We noted a similar parallelism between the fibrotic pelvis and fibrotic breast tissue Nine vulval tumors were identified, of which only one was malignant. There were six cases of cervical carcinoma, four of which were discovered during the survey One anal fibroma, 24 uterine fibroids, 7 cervical fibroids, and 5 ovarian tumors were discovered

The lack of gynecologic symptoms was especially significant. They were present in only 69 cases, or 10% of the series, despite the observation that there were found 26 common lesions of the cervix, 51 cases of chronic cervicitis, 170 cases of relaxed anterior vaginal wall, 296 cases of rectocele, 61 cases of nonspecific bacterial vaginitis, 196 cases of external hemorrhoids, and 86 cases of urethral caruncle Also, 90 women had complete urinary incontinence, and 29 women had a definite stress incontinence In 63 cases there was complete loss of bowel control and in 17 cases a partial loss One patient with megacolon and having a bowel movement only once every two to three weeks insisted she had no symptoms We agree with Randall[3a] that the probability of ovarian malignancy decreases rapidly after the age of 50 years

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Mrs Leah J M Folsome aided in the assembly of the statistical data in this study

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FOUR-MINUTE LIMIT FOR CARDIAC RESUSCITATION

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• *Duration of cardiac arrest and the degree of cardiac and cerebral recovery were studied in 132 patients in whom cardiac arrest had occurred during anesthesia and surgery and postoperatively It was found that 53 had not been revived and that 44 died after varying periods of survival Complete recovery occurred in 33 patients, and in all of these cases resuscitative measures were found to have been started within four minutes after the cardiac arrest was noted Two patients who survived despite a delay of more than four minutes have a cerebral impairment that is probably permanent*

To reduce the danger of death or disability from this cause, physicians and surgeons must be trained to act with promptness and precision, solutions and apparatus must be ready for immediate use, and visual and auditory aids must be used to determine the earliest sign of cardiac arrest Signs of cardiorespiratory embarrassment, of which bradycardia was the most common, usually gave warning when stoppage was imminent

Cardiac arrest is considered to have occurred when the heartbeat is no longer strong enough to be of hemodynamic significance Since it results in failure of oxygen transport, every case of cardiac arrest is an emergency calling for immediate action, because the cells of the cerebral cortex cannot survive long after their oxygenated blood supply has been interrupted Depending on the effectiveness of resuscitative efforts within a very short period, the individual may recover completely, die in a few hours, or live longer in varying degrees of a decerebrate state

The urgency of the problem became evident when over 115 cases of cardiac arrest were collected from Los Angeles alone over the two-year period from 1952 to 1954 Since the cases that form the majority of the basis of this report came from physicians from less than 25% of the hospitals of Los Angeles approved for internship, the actual incidence in all Los Angeles hospitals might be well over four times that number During the same interval, 15 additional cases were reported in the newspapers of this region From these figures it is estimated that one case of cardiac arrest occurs every operating day in the hospitals approved for internship in Los Angeles combined with other hospitals, plus an indeterminate number in offices where anesthesia is given Thus Los Angeles contributes approximately 230 of the 10,000 cases that Hosler[1] calculates is the annual incidence of cardiac arrest in the United States

When 18 of the reported cases had to be discarded because of incomplete data, 34 additional ones were gathered from San Francisco to make the total of 132 cases that is the basis of this report Classified as to degree of cardiac and cerebral recovery, 35 patients were still living at the time of this writing, but 2 of them have permanent impairment of cerebral function Fifty-three could not be revived, and 44 died after days, weeks, or months in varying degrees of a decerebrate state (see table)

Survival Time and Degree of Cardiac and Cerebral Recovery

	Patients	No
Still living at this writing		35
Complete cardiac and cerebral recovery	33	
Complete cardiac but partial cerebral recovery	2	
Survived for a time with complete cardiac recovery varying degrees of decerebracy		44
Lived 19 to 36 wk	3	
Lived 3 to 33 days[a]	8	
In coma lived 1 to 48 hr	33	
Could not be revived		53
No cardiac or cerebral recovery		
Total		132

Analysis of Time Intervals

Analysis of time intervals showed that treatment was started within four minutes of the time of diagnosis in 78 cases, there was over four minutes of delay

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From the Cardiac Clinic Cedars of Lebanon Hospital (Drs Cole and Corday) the University of Southern California School of Medicine Department of Medicine (Cardiology) (Dr Cole), and the University of California Department of Medicine (Dr Corday) in diagnosis or start of treatment in 30 cases, and in 24 instances the time intervals could not be determined or effective resuscitation was not attempted In times of great stress, with a patient hovering between life and death it is understandable that the tension of the acute crisis obscures the passage of time When no notes were made of the precise onset or when observers disagreed as to the time of start of treatment, reports were discarded One fact, however, became strikingly obvious in all 33 completely recovered patients, resuscitative measures were instituted within four minutes of the diagnosis of cardiac arrest

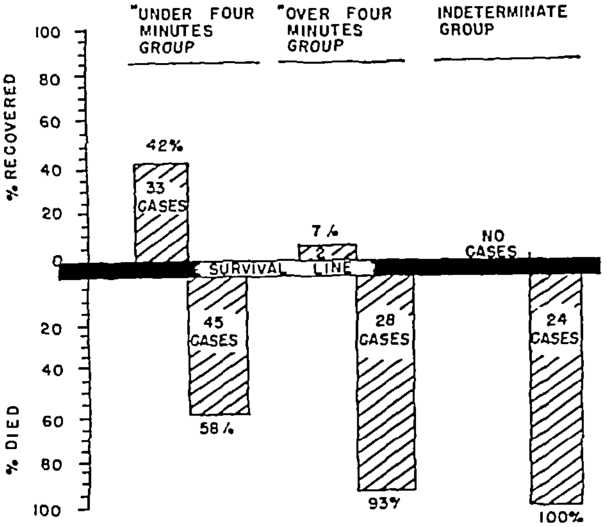

Fig. 1 —Effect of time in cardiac resuscitation

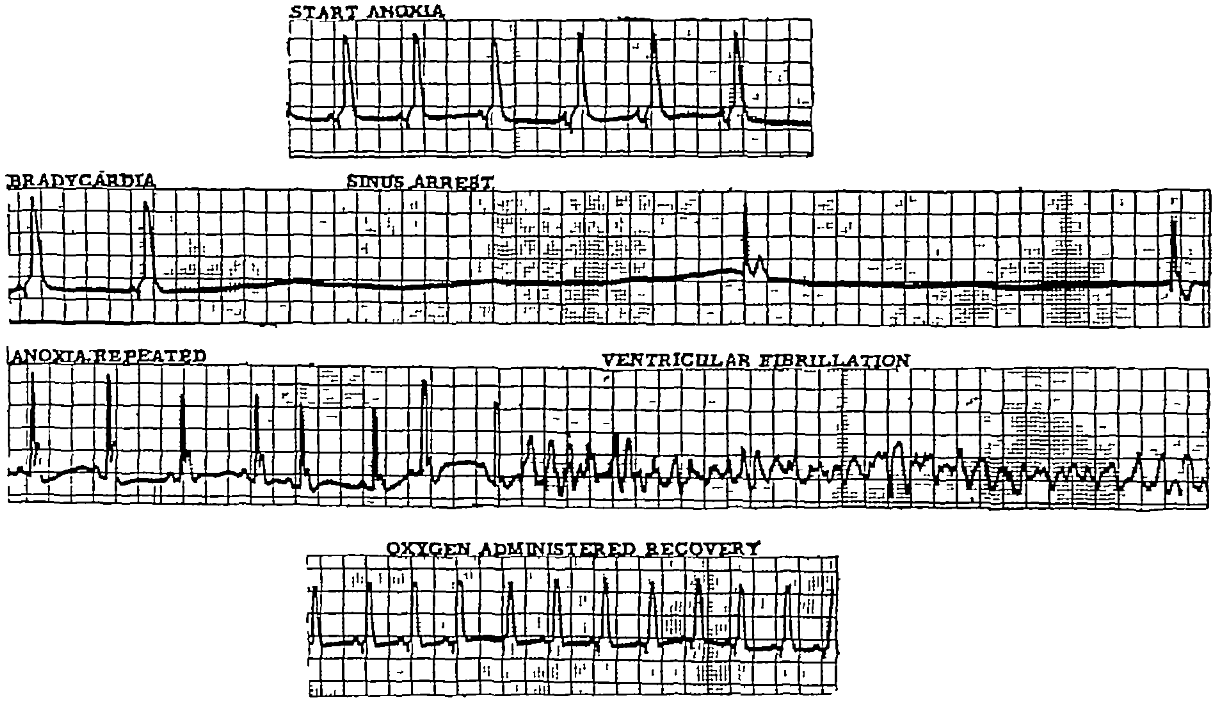

Fig. 2 —Effect on dog heart of anoxia due to carbon dioxide inhalation Note bradycardia followed by atrioventricular block and ventricular fibrillation. Sinus rhythm was restored after oxygenation, manual compression and defibrillation.

When the line of survival was drawn, the effect of time was clearly demonstrated (fig 1) Of the "under-four-minute" group, 42% recovered completely, in the "over-four-minute" group, 7% recovered, in the indeterminate group, none recovered The two who recovered in the over-four-minute group both showed permanent central nervous system damage, they represent 1% of the total of 132 Correspondence with Veterans Administration facilities uncovered four more patients with permanent cerebral impairment secondary to cardiac arrest [2]

Causes of Arrest

The anesthetic records of the 45 patients who died in the four-minute group showed that in 36 there was evidence of cardiorespiratory embarrassment before complete arrest occurred, as indicated by fluctuations of blood pressure and respiratory rates, particularly hypotension and apnea, and by cyanosis, dark blood, variations in pulse rate, and arrhythmias Particular mention should be made of the most common arrhythmia presaging cardiac arrest It was a bradycardia (fig 2) characterised by a slow bounding pulse with a rate of 20 to 40 beats per minute Treatment instituted at this juncture is believed to have averted ventricular standstill or fibrillation in two cases

Comparison was made of the 33 patients who recovered and the 45 who died in the under-four-minute group in order to determine whether other factors besides time determined death or survival Age and sex had no demonstrable effect In two cases dark skins were considered to have interfered with the recognition of dusky cyanosis Of the 38 different surgical procedures, major and minor, no single operation had a particular tendency to cause cardiac arrest, which occurred before, during, and after the surgical procedures There were several cases, however, in which surgical shock and hemorrhage proved to be prime etiological factors

While overanesthetization was important in a majority of cases, no single anesthetic agent or route of administration could be indicated as the predominant cause Twenty different anesthetics were used in 51 different combinations of inhalant, spinal, intravenous, regional, local, and topical anesthesia Although from one to seven agents, including premedications, were employed in each case, there was no correlation between death rate and multiplicity of agents It was noted that barbiturates were used in 83 cases, in 55 of which intravenously administered thiopental (Penthothal) sodium was the agent There were three cases of arrest due to reactions to cocaine derivatives, applied topically in two cases and spinally in one

In 70% of the patients the heart was found to be in ventricular standstill In 15% there was fluctuation between ventricular standstill and fibrillation The latter occurred as an initial arrhythmia in only four instances The heart was still beating slowly and feebly in seven patients As the degree of impairment of contraction of the left ventricle increased, the recovery rate decreased Thus, while there was 100% recovery of the seven patients in whom the heart still was beating feebly, the recovery rate was but 42% when arrest had progressed to ventricular standstill When ventricular fibrillation was present, the recovery rate dropped precipitously to 17% (fig 3)

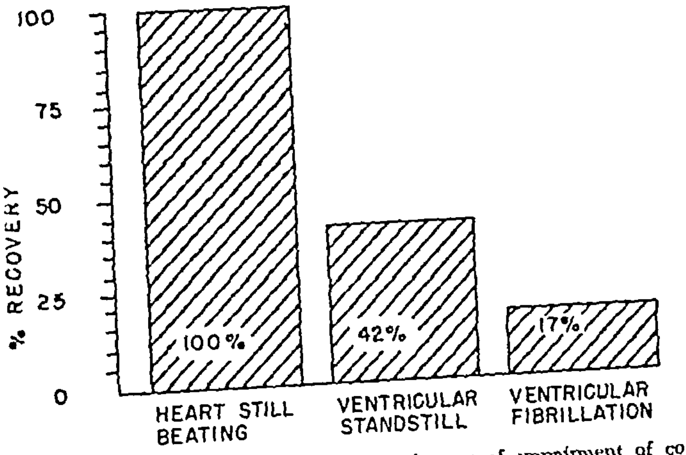

Fig 3—Rate of recovery with varying degrees of impairment of contraction of left ventricle

In the 33 patients who recovered, reversible causes of arrest were overanesthesia, airway obstruction, and neurological reflex mechanisms Obstruction of the airways complicated 29 of the 132 cases When bronchial secretions were the cause in 18, they were successfully cleared with complete recovery in 8 cases When aspirated vomitus was the obstruction, however, in none of the 11 cases could it be sufficiently removed to permit recovery

Neurological reflex mechanisms were considered to have initiated arrest in 11 cases They arose from stimulation of branches of the vagus nerve by surgical manipulation in the regions of the carotid sinus, styloid process, or stomach, by bronchial and esophageal irritation, or by manipulation of the heart and great vessels Five patients recovered completely, in the six who did not, additional major complications were present

The irreversible causes of cardiac arrest were unclearable airway obstruction, 21 cases, pulmonary disease, 16 cases, decreased blood volume due to massive hemorrhage, 11 cases, and shock, 7 cases, and cardiac disease and damage, 22 cases In four instances sudden change in position was the only causative factor noted There were 11 patients with intracranial pathology that could have decreased the resistance of the brain to hypoxia The importance of complicating factors on the outcome of cardiac arrest is highlighted by the fact that, of the 45 fatally affected patients in whom resuscitation was initiated in four minutes, 17 had one, 21 had two, and 7 had three major complications

The cardiac concomitants consisted of seven unsuspected infarctions, eight cases of frank failure, two of tamponade, two of air embolism, and one of endocardial fibrosis None of these patients survived There were seven patients in whom the ventricles were traumatized, of these, one survived None of these traumatizations occurred during an operative procedure on the heart Fortunately rare, damage to the ventricle as the result of cardiac compression is a risk that must be taken, since the patient will die unless arrest is adequately corrected While arrest may be expected to occur more frequently during cardiac surgery (fig 4), this is balanced to some extent by the fact that thoracotomy will have been done well within the four-minute limit

The pulmonary complications included five cases of atelectasis of one or more lobes, three of marked emphysema, six of advanced tuberculosis, two each of hemothorax, pneumothorax, pleural effusion, and pulmonary infarction, three of pneumonia, and one of empyema Of these, only one of the patients with emphysema survived Of the eight patients with intracranial disease, two had cerebral hemorrhage, and there was one alcoholic patient with convulsions and cerebral concussion There were two cases of cerebral emboli with infarction and one each of subdural hematoma and herniation of the cerebellum into the foramen magnum A patient with delirium tremens was the only survivor of this group

Comment

The precise length of time that the central nervous system of an intact animal can withstand interruption of the blood flow was determined by Weinberger, Gibbon, and Gibbon[3] to be three minutes and 10 seconds When they closed off the blood supply to the brain for increasing intervals past that critical period, they found six categories of increasing degrees of decerebracy and decreasing percentages of survival that closely parallel the six groups of patients in this series (table) Two important differences, however, between humans with cardiac arrest and these experimental animals are that the human's oxygen transport system may be impaired, and the time intervals cannot be controlled

In 36 of the 45 fatal cases in which cardiac compression was instituted promptly, there was evidence of preexisting cardiorespiratory embarrassment producing sufficient cerebral hypoxia before the onset of complete arrest that the four-minute limit was no longer a margin of safety Increasing delay in diagnosis of arrest and start of therapy results in increasing cerebral damage In addition to our six survivors of arrest with permanent cerebral impairment, there are to our knowledge two more leading a vegetative existence in a hospital in another city[4] There must be many hundreds who can exist in institutions, only with constant custodial care

Since Crile and Dolley[illegible] in 1906 concluded that success in resuscitation was inversely proportional to the lapse of time after the onset of arrest, the importance of the time factor has been emphasized In view of the still high incidence of failure of resuscitation, however, it has not been overemphasized Even Lahey,[6] who had a trained surgical team for 20 years, found that the mental block produced by the sudden onset of cardiac arrest caused him to lose about 30 seconds out of every minute

It is important to utilize every means to pick up the earliest danger signal of cardiac arrest. Electrocardiographic, cardioscopic, and auditory aids (such as the Cardicator) should be used to monitor all patients undergoing operation, particularly those with ventricular premature beats, bundle-branch block, severely damaged myocardiums, respiratory impairment, and shock There is no time to think when cardiac arrest strikes To be effective within the four-minute limit, all operating room personnel must have been indoctrinated and all equipment prepared beforehand so that immediate action can be taken with the speed of a reflex reaction and the precision of a fire drill

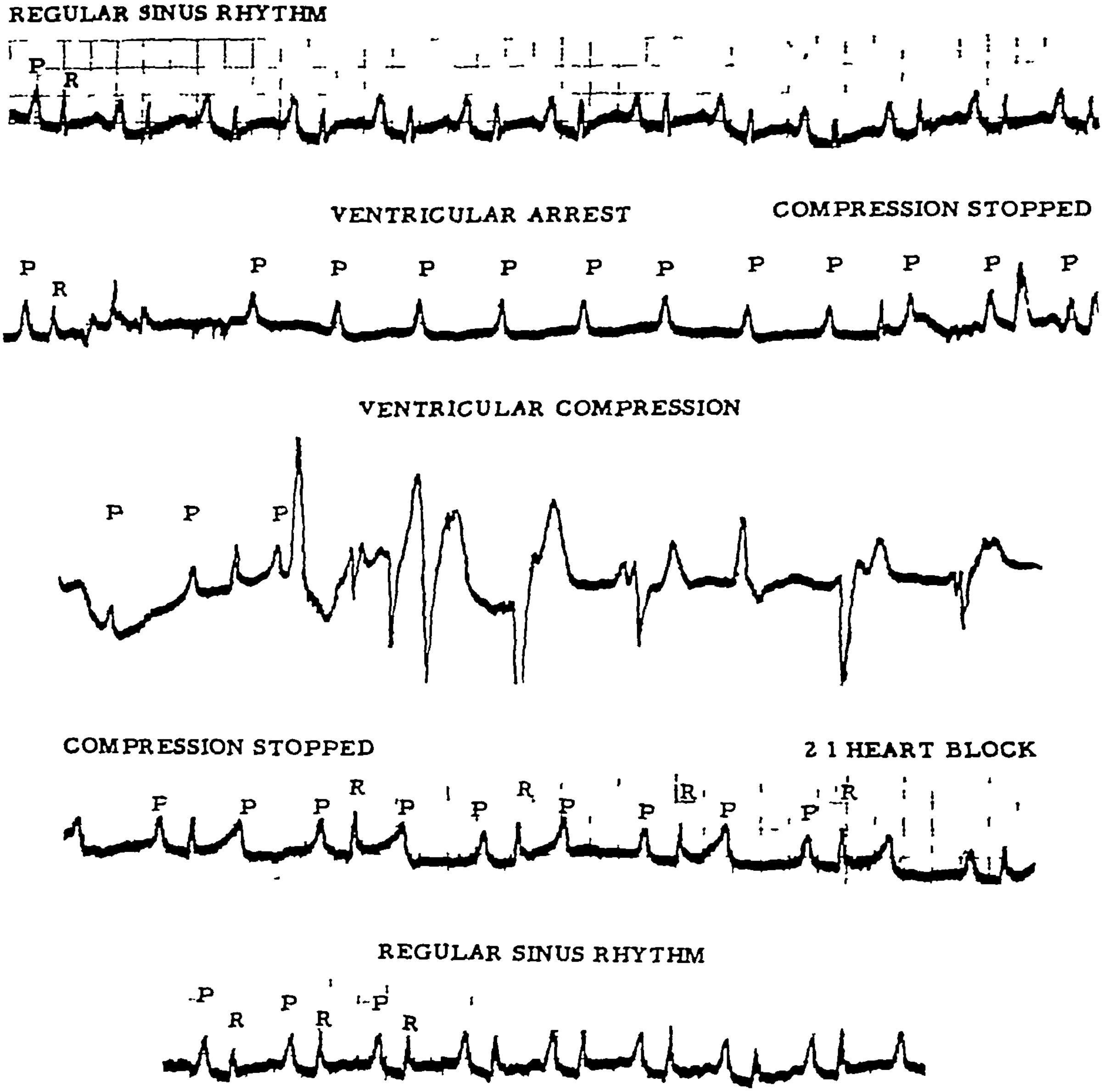

Fig 4 —Electrocardiogram made during operation to correct interauricular septal defect. Finger on atrioventricular node repeatedly caused ventricular arrest Cardiac compression restored normal sinus rhythm

The step-by-step procedure is described by Hosler[1] in his manual on cardiac resuscitation Since there is no time to determine dosages, to make up concentrations, the three main drugs used in cardiac resuscitation should already be prepared in 10 cc amounts of sodium chloride solution, namely, epinephrine (Adrenalin) solution 1 1,000, 10% calcium chloride, and 1% procaine hydrochloride All pieces of equipment should be in duplicate, particularly the electric shock machine for defibrillation Two of the patients in this series died because the defibrillating apparatus was not adequate or broke down at a crucial moment and there was no replacement

Thoracotomy is necessary for efficient cardiac compression and is essential to diagnose the type of arrest, standstill, or fibrillation so that proper treatment can be started While the electrocardiogram adequately demonstrates ventricular fibrillation, it cannot be relied upon to diagnose ventricular asystole, since good QRS complexes may still be obtained although the ventricles have been in complete standstill for over five minutes

Claude Beck,[7] pioneer of the principles of cardiac resuscitation, emphasized that restoration of the oxygen transit line to the brain was the most important factor It is here that the four-minute limit applies When that has been accomplished, then time can be taken to restore the heartbeat and respiration In one of our cases, a chest surgeon had time to dash several miles between hospitals to restore a patient whose heart had stopped but on whom cardiac compression had been started

While medicolegally only the surgeon may consider himself responsible, Bonica[8] describes instances where the anesthesiologists performed prompt thoracotomies The internist performs an additional service to the patient he accompanies to the operating room if, should the emergency arise, he is prepared to properly and promptly resuscitate an arrested heart So that many physicians may learn to manage cardiac arrest, Beck and Hosler established the first course in cardiac resuscitation The Los Angeles Heart Association held a series of symposiums with the hospital staffs throughout its area and established a course in cardiac resuscitation To these efforts many of the surviving patients in this series may owe their lives

Summary

One hundred fifty cases of cardiac arrest, 116 of them from one city, were collected over a two-year period Of the 132 patients concerning whom there were sufficient data for analysis, 33 made complete recoveries Resuscitative measures were started within four minutes of the diagnosis in all of these When there was over four minutes' delay in the start of treatment, all but two of the patients died The two who survived have cerebral impairment that appears to be permanent after several months In 36 of 45 patients who failed to respond even though resuscitative measures were started within the four-minute limit, there was evidence of cardiorespiratory embarrassment before the onset of complete arrest Bradycardia was the most common sign of cardiac embarrassment Prompt treatment at this stage is believed to have averted more advanced cardiac arrest in two cases Since major complications, such as aspiration of vomitus, uncontrolled hemorrhage, and cardiac and pulmonary disease and damage, resulted in fatalities even though resuscitation was started promptly, the four-minute limit cannot be considered a margin of safety Visual and auditory aids to determine the earliest sign of cardiac arrest should be used to monitor all patients undergoing operation To lower the incidence and increase the percentage of recovery in cardiac arrest, more physicians must be trained to take immediate precision action within the four-minute limit for cardiac resuscitation

4751 Fountain Ave (29) (Dr Cole)

Dr Jean Haber Green helped in collecting and compiling cases of cardiac arrest Drs Joseph Brisbane S J Denson S A Desick E D Eldridge Lester W Fish, Alfred Goldman Charles S Googooian Craig Heringman Theodore H Hiatt Forrest Leffingwell, Elton L Morel, Stanley Moulton Murray Russell, Nevin H Rupp John J Sampson Maurice Schneider, Maurice Sokolow David State Meyer Thorner Benjamin Winter, F E Woodhull and Raymond E Ponath with the aid of Louis Brizzolara and Henry Sylvani, made cases of cardiac arrest available to us

This study was financially assisted by Mr J Paley Mr and Mrs E Cantor, and Mr and Mrs Spiros Ponty

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Cerebrovascular Disease in the Aged —Of the three causes of cerebrovascular accidents—hemorrhage, thrombosis or embolism—thrombosis is by far the most common in the aged, and is said to constitute over 90 per cent Cerebral arteriosclerosis as the basis for infarction, small or large, solitary or repeated, lies at the root of many of the mental and neurologic disorders seen in the aged It is refreshing to view the changed attitude toward strokes that prevails today Rehabilitation techniques now known to everyone make contracture and deformity due to neglect a grave medical error It is so easy to keep the paralyzed arm away from the body and the flexed leg straightened, right from the start Efforts toward ambulation should be made as soon as possible after the acute phase is over and the lesion has become stabilized The goal, always in respect to the total patient, is to achieve maximum function by developing abilities and bypassing disabilities —W Hammond, M D, Common Disorders of the Aged, *Journal of the American Geriatrics Society*, March, 1956

SAPHENOUS VEIN STRIPPING FOR VARICOSE VEINS DURING PREGNANCY

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and
Edward W Jenkins, M D., Hanover, N H

• *Varicose veins that developed in 23 healthy, pregnant women between the ages of 22 and 42 years were treated surgically by a technique consisting of high ligation and complete stripping of the superficial system involved The greater saphenous system was involved in all 23 cases, in addition, vulval varices were present in 8 Spinal anesthesia was used Because the need for careful dissection and meticulous wound closure makes the operation time consuming, two surgical teams worked simultaneously in those cases in which the procedure was bilateral The preoperative marking of the skin, numerous details during operation, and postoperative care including early ambulation, all require close attention*

Because the operation relieved very troublesome symptoms, especially in cases of huge vulvar varices, all but one of the patients stated they were very glad they had the operation performed It was found, however, that the removal of the major superficial venous systems did not prevent recurrence of varicosities during later pregnancies The operation is therefore not advised except in women who do not contemplate having more children or who have vulvar varices so large as to indicate cesarean section

Despite the high incidence of incapacitating symptoms and unfortunate sequelae of severe varicose veins in pregnancy, surgical treatment for this condition remains controversial Those who advocate surgical treatment are not in agreement as to method[1] We believe that patients with severe lower extremity and vulvar varicosities should be offered the relief obtainable by venous ligation and total stripping[2] This treatment is especially warranted in those patients with accompanying stasis dermatitis, ulceration, edema, indurated cellulitis and acute superficial thrombophlebitis and those with a history of difficulty during a preceding pregnancy with bleeding vulvar varices or postpartum thrombophlebitis

The major factor in the etiology of varicosities is generally agreed to be an inherent defect in the veins and supporting tissues Anatomic variations in the number of valves and their position are also thought significant[3] In pregnancy an increase in adipose tissue, blood volume, and obstruction of the lower extremity venous return by the enlarging uterus influence varix formation[4] Hormone fluctuation[5] and vitamin deficiency[6] are uncertain factors Concerning severe varices, we agree with Rutherford,[1c] who states, "Any improvement in varicose veins after pregnancy is only temporary, for permanent damage has been done, and with each succeeding pregnancy or simply with the aging process, varices become more and more pronounced

The incidence of varicosities in pregnancy is reported from 11 to 50%,[7] but only a small number of these will require more than conservative treatment In gravid females with mild varicose veins, management chiefly consists of elastic bandage wrapping and daily periods of elevation If properly treated, these varices should not affect pregnancy, labor, or the postpartum course In the series of 23 patients reported on herein, all were normal, healthy pregnant young women except that they had advanced varicose veins of the lower extremities and vulva (fig 1 and 2)

The average age of these patients was 32 years, with a range of 22 to 42 years The average duration of their pregnancy at the time of operation was five and a half months, with a range of four to seven months The average weight was 142 lb (64 4 kg), with a range of 122 to 187 lb (55 3 to 84 8 kg) Obesity was uncommon These women gave a history of varices averaging a little over 6 years duration, with a range of three months to 15 years Moderate normocytic anemia in pregnancy is usually regarded as physiological This was reflected in this series by a low hemoglobin level average of 11 2 gm per 100 cc and a range of 9 9 to 13 4 gm No attempt was made to alter this All the women but two had been pregnant previously There was an average of four pregnancies per patient. The average number of full-term deliveries prior to the present pregnancy was 2 7

Surgical Treatment

Initially each of the patients was examined at the Hitchcock Clinic, where a careful evaluation was made and a date for surgery established Because 86% of abortions are stated to take place prior to the 12th week of pregnancy,[8] and because of the possibility of initiating labor late in pregnancy, the second trimester is the optimum time for elective surgery Other reasons for choosing the second trimester are increased bleeding from engorged venules in the third trimester,[1c] a direct relationship between early operation and longer duration of relief, and the likelihood of greater fluctuations in blood pressure during spinal anesthesia later in pregnancy It has been stated that 77% of the varices

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Read before the Ninth Clinical Meeting of the American Medical Association Boston, Nov 30 1955

develop in the first two trimesters, and it has been found that surgery is rarely necessary after the seventh month [1c]

The patient's veins are marked on the evening prior to surgery Although others have devised dyes of various formulas, we have found the most satisfactory method is scratching the skin with a fine, sharp needle under aseptic conditions This is relatively painless and tolerated without complaint Preoperative medication is ordered in similar or somewhat smaller doses as for the same patient in the nonpregnant state Spinal anesthesia is chosen for its comparative safety for the fetus [9] Ligation and stripping are the surgical treatments indicated The results in our hands as well as the reports in the literature [10] show that it is the best method known thus far The argument that a more temporary surgical procedure is done because of less risk is not valid There is no evidence that morbidity is increased by this more definitive method [10b]

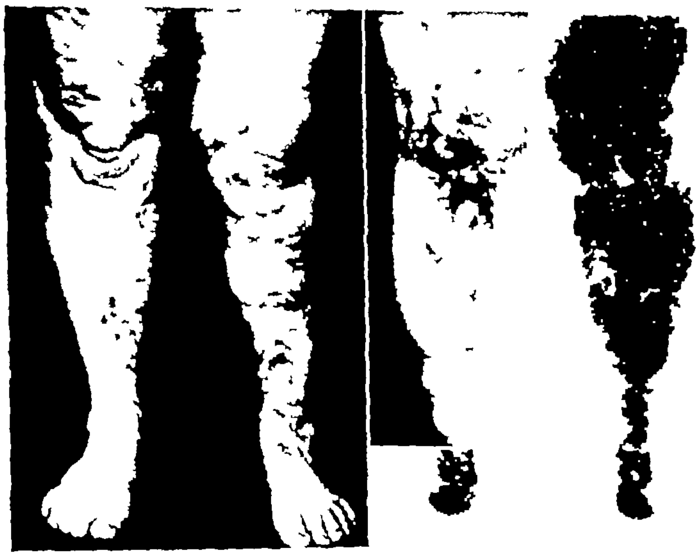

Fig 1 —Thirty-three-year-old pregnant woman with symptoms of severe varicose veins and impending stasis ulcer on the left lower extremity (Infrared photos)

The technique at operation consists of high ligation and complete stripping of the superficial system involved greater and/or lesser saphenous, unilaterally or bilaterally Care is taken to ligate the greater saphenous vein flush with the common femoral vein to avoid thrombus formation in a long saphenous stump The area about the saphenofemoral junction is examined closely for an accessory saphenous vein, which is said to occur in 2 to 3% of the population Nonabsorbable suture material is recommended to insure permanent closure of all tributaries in this region Incompetent perforators and large tributaries are ligated, avulsed, resected, or stripped as indicated Large varices that appear to drain into vessels above the saphenofemoral junction, i e, the pelvic and abdominal veins, are often found along the medial and lateral thigh These were notable in patients with a history of previous treatment They are easily handled by ligation in the thigh and by stripping, but the increased pressure in these systems in subsequent pregnancies may be a factor in recurrent varicosities especially when the greater and lesser saphenous trunks have been removed

To shorten operating time, two teams working simultaneously are desirable if the procedure is bilateral Despite other reports,[1a] it has been our experience that there is less technical difficulty in handling varicose veins of comparative recent origin in these healthy young women than in the usual advanced varices in other patients Pressure dressings, applied at operation are removed the following day, when small patch dressings and elastic bandages are applied to the knees Ambulation is begun either late on the day of operation or on the first postoperative day This is imperative to prevent thromboembolism

The greater saphenous system was found to be involved in all 23 cases There was bilateral greater saphenous incompetency in 17 patients and unilateral in 6 In 13 cases there was involvement of the lesser saphenous system, in 6 of these the disease was bilateral and in 7 unilateral Vulval varices were present in eight instances Four patients in this series had had no previous treatment, but five others had been treated with elastic bandages only The remaining 14 were treated with various methods and combinations, including injection, ligation, resection, and radiation Two had had combined ligation and stripping One of these patients was operated on while pregnant, and the other was in the nonpregnant state Both were

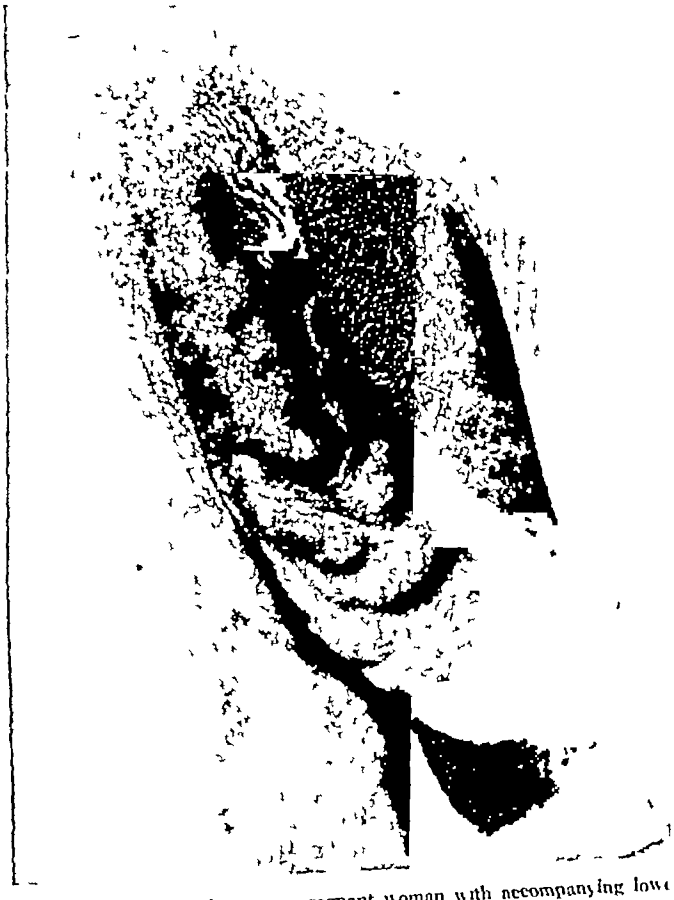

Fig 2 —Vulval varices in a pregnant woman with accompanying lower extremity varices Patient referred because of contemplated cesarean section

found to have major varicosed trunks Six of the women had been treated for phlebitis in the postpartum course

We were somewhat surprised to find the average duration of operation to be two hours and five minutes Turning the patient and redraping for treatment of the lesser saphenous veins takes up some of this time Meticulous wound closure is another factor In one of the longer cases, a subcuticular closure was done in each of the many skin incisions in an unsuccessful attempt to improve the early cosmetic appearance Operating time ranged from 55 minutes to three hours and five minutes Spinal anesthesia was used in all but two cases Locally given procaine (Novocain) hydrochloride was used once and continuous caudal anesthesia supplemented by local infiltration was used in the other case

Operation consisted of bilateral stripping and ligation in 14 cases Both the greater and lesser saphenous systems were ligated and stripped in three of these patients Vulvar varices were ligated and segmentally resected in eight It was evident these patients had less postoperative discomfort and temperature elevation were mobilized postoperatively more easily and could be discharged earlier than nonpregnant persons There were no complications during operation and only two postoperative complications One was a case of cystitis believed secondary to catheterization, and the other was diagnosed as spinal headache The complaint was only of short duration in each instance and did not lead to significant increased hospitalization The average hospital stay was 2 7 days The range was one to seven days The three patients who stayed a full week postoperatively did so for their own convenience rather than for their illness

The postoperative temperature elevation was negligible There were only four episodes of a rise above 99 4 F (37 6 C) orally The highest temperature found postoperatively in the four-times-a-day recordings was 100 F (37 7 C), and this was transient. The only significant alteration during operation was in blood pressure After administration of anesthesia, a few patients had a rise in blood pressure, but most commonly it fell The greatest fall in systolic pressure was 40 mm Hg and the greatest fall in diastolic pressure was 30 mm Hg None of these depressions in blood pressure were prolonged or to dangerous levels These changes during operation were felt to be consistent with fluctuations encountered in administration of spinal anesthesia to pregnant women in general The known increase in basal metabolic rate during pregnancy may be an indication to increase sedation This would help to prevent blood pressure fall by diminishing the transient preanesthetic hypertension found in many of our patients

Results

The first of the 23 patients in this series was operated upon in 1948 We have been able to contact 18, or 78% All of these women had normal full-term spontaneous deliveries except one, who had a cesarean section because of uterine inertia None had postpartum complications, including those who had had a previous postpartum phlebitis Two patients referred to us because of huge vulvar varices and for whom cesarean sections had been contemplated went on to normal delivery One patient did have vulval bleeding however, and subsequently had a cesarean section in a later pregnancy We did not see her during that pregnancy Practically all of these patients expressed their gratitude for the relief they experienced during the remainder of their pregnancy Only one felt her benefit was equivocal All stated they were very glad they had the surgery performed and without prompting stated they would highly recommend the operation except for one who replied she did not know

Eight patients required no further treatment Six required injection of minor residual varices, and four were considered candidates for further surgery Three of these latter patients had become pregnant again and had recurrence of their varices during pregnancy The fourth was the first patient operated on and it was felt the surgery was not as complete as it was for later cases after the postoperative course had been found to be so benign It was interesting to note that those patients who did have recurrence of varices with a subsequent delivery were impressed with the belief that neither the objective nor subjective symptoms were as severe as prior to stripping and ligation

Conclusions

We feel that pregnancy itself is not a contraindication to radical stripping for varicose veins The candidate for the operation is the person who has severe varicose veins of the lower extremities or severe vulvar varices, either of which would jeopardize labor or the postpartum course In our experience, subsequent pregnancy is accompanied by recurrent varices in these individuals, despite the removal of the major venous systems Except for the more severe complications, or when large vulvar varices indicate cesarean section, the operation should be reserved for those women who do not contemplate having more children

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SKIN GRAFTS FOR CHRONIC WOUNDS OF THE LOWER EXTREMITY

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and
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• The usefulness of skin grafting in ending the pain and disability of long standing ulcerations in the lower extremity is illustrated by four case histories In one, the chronic open ulceration behind the knee was secondary to a burn sustained 20 years before, in another, ulceration on the dorsum of a foot had persisted for eight years after a laceration In a third, a split thickness skin graft failed before, but succeeded after, excision of an infected, fibrotic, calcareous mass of tissue that underlay a persistent, painful ulceration over one ankle In the fourth, skin grafting succeeded without excision after clearing up an infection that had led to skin necrosis

The thin epithelium that ordinarily covers rigid scar tissue is vulnerable to relatively minor trauma The resilient layer of normal skin is the dermal pad, and this, if grafted may give longer and better function than does the epithelium alone But successful grafting depends on careful attention to details

Although skin grafts have been used for the resurfacing of open wounds for over 75 years, better understanding of their function and improved preoperative and postoperative care of wounds have extended their use in recent years After the early descriptions of the various sizes and thicknesses of grafts by Reverdin (1869) Lawson (1870), Ollier (1872), and Thiersch (1874), skin grafting changed but little during the next 50 years

After World War I, when modern plastic surgery received its start, there was wider appreciation of the uses of skin grafts The dermis was recognized as the most important part of the graft in producing a tough, pliable surface The healing of donor sites from the deep epithelial structures, the hair follicles, sebaceous glands and sweat glands was demonstrated and grafts of larger size and greater thickness were cut successfully without permanent damage to the donor site Recently, mechanical instruments for cutting large sheets of skin have been devised

During World War II, with the increased need of skin grafting for burn and high-velocity-missile injuries, plastic surgeons and general surgeons carried out 'as routine procedures what would have been considered fantastic in the last war" As progress has continued, "plastic surgery is no longer synonymous with skin grafting, the plastic surgeon has put skin grafting where it belongs, as a technique of surgery applicable to all fields of surgery, just as is suturing or hemostasis "[1]

It is the purpose of this paper to call attention to some basic principles of skin grafting as they apply to chronically open areas of the lower extremity and to demonstrate further refinements in their use These problems may be encountered by the general practitioner as well as by the orthopedic surgeon, the vascular surgeon, or the plastic surgeon

A few definitions applicable to skin transplantation will be helpful A free skin graft is completely detached from its donor site and consequently from its blood supply It may be a partial, or split-thickness, graft, or a full-thickness graft Even the thinnest graft has a layer of dermis, contrary to a common misconception that a split-thickness graft separates the epidermis from the dermis The epidermis has no stability of its own and if unsupported by dermis will disintegrate The full-thickness graft has restricted usefulness and can be disregarded in conditions of the lower extremity The other method of transplanting skin is by a pedicle flap, which consists of skin and subcutaneous tissue It can not be separated from a blood supply The indications for its uses are beyond the scope of this discussion

Types of Ulceration of the Lower Extremity

The common ulcer of the lower extremity is related to disease of the venous system Postphlebitic or varicose ulcers occur in the central portion of brawny, indurated, pigmented areas of skin and usually have a

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Read before the Ninth Clinical Meeting of the American Medical Association Boston Dec 1 1955 long history of intermittent healing and ulceration Ulcerations following a burn or an avulsion injury may heal spontaneously in a few days or may persist or recur for years Ulceration due to primary infection is uncommon except when associated with arteriosclerosis, diabetes, chronic osteomyelitis, or neuropathic states Pressure ulcers may occur under casts or in extremities deprived of their sensory nerve supply Whatever may be the cause, an open surface healed by scar tissue and thin epithelium may reulcerate after minor trauma or may recur spontaneously as circulation is impaired in later life Repeated healing and ulceration can lead to neoplastic change In a recent study of 93 such neoplasms arising in burn scar, the average latent period from the time of the burn to the appearance of cancer was 32 years[2]

Aim of Treatment

The aim of treatment is to obtain a closed wound or to excise and replace the heavily scarred tissue with pliable functional skin Therapy thus interrupts the vicious circle of ulceration infection, edema, fibrosis, and ischemia, all of which tend to the re-formation of ulceration Early wound closure by grafting may be permanent because edema and fibrosis are minimized Persistent ulceration for a considerable time will be associated with increasing edema and fibrosis, which cause dissolution of a temporarily successful graft as the patient resumes normal activity In such cases total excision of the ulcer and adjacent scar even as deeply as the relatively avascular paratenon and periosteum is desirable prior to grafting

Preoperative Preparation

Preoperative preparation of chronic ulcers of the leg is systemic and local The systemic factors include attention to the general health and nutritional state of the patient and the appropriate treatment of circulatory derangements by ligation of diseased vessels, sympathectomy, or arterial grafting Invasive infection or spreading cellulitis requires the selective systemic use of the appropriate antibiotic

The keystone of local wound care is mechanical cleanliness "Chemicals may come and chemicals may go, only to have one replaced by another However in care for patients the approach of cleanliness, of doing no further harm, of gentleness, and of a willingness to use all the elbow grease necessary will be as important a thousand years from now as it is today"[1] Although sterilization of an open wound is impossible, local cleanliness decreases the amount of epithelial debris, creates the optimal environment for the growth of healthy granulation tissue, and minimizes bacterial contamination Bidaily or daily dressing with débridement of necrotic tissue is the most effective way to clean and prepare the wound for grafting By a daily soap and water tub bath large areas may be prepared for grafting effectively, easily, and comfortably There is little evidence that the enzymatic débriding agents are more effective than mechanical debridement A nonadherent dressing for the raw surface is desirable, plain fine-mesh gauze has proved satisfactory Other types of dressing recommended for covering the raw surface offer little more

The decision regarding the debriding of exposed bone or tendon is difficult because of uncertain lines of demarcation Exposed bone or tendon will ultimately sequestrate or slough if dead, or develop granulations on the surface if viable The surface well prepared for grafting has cherry red, nonedematous granulations, with only a small amount of exudate on the dressing Inspection of the wound is the best means of judging the optimal time for grafting Ye has described a helpful test for determining the condition of the wound by using the pH of the wound as an indicator He has correlated the survival of the graft with the pH of the granulating surface and reports complete success with a pH of 7 4 or above and decreasing success as the pH falls[3]

Topically applied antibiotics have limited value in care of wounds Surface organisms are usually of low virulence and have low resistance to most of the drugs Superior results reported after use of topically applied agents are often attributable to improved wound care given by the interested physician Heavy scar tissue minimizes contact with the phagocytes of the circulating blood Possibly the enzymes in the granulation tissue further inactivate the drug Soap and water in conjunction with mechanical cleanliness and occasionally a weak Dakin's solution (one-half strength) has proved most effective

Obtaining the Skin Graft

There are several methods for obtaining sheets of skin of desired thickness Although the mechanical dermatomes aid in securing large skin grafts, their use neither guarantees success nor supplants the need for careful preoperative and postoperative care of the wound Skill in the use of a thin-bladed knife of the Ferris Smith type can be acquired The method is universally available, rapid, and applicable for large or small areas Donor sites properly cared for reepithelialize in 10 to 12 days

Technical Aspects of the Skin Graft

Skin grafts will survive if the recipient site has sufficient blood supply to nourish the graft, if bacterial growth is controlled, if blood or serum collection under the graft is prevented, and if complete immobilization between the undersurface of the graft and the recipient site is maintained until vascularization of the graft is established Immobilization is best maintained by a pressure dressing and splinting Healthy granulations adjacent to exposed nonviable bone or tendon should be grafted in order to reduce the size of the open wound The type of suture material is of little importance, often no sutures are necessary, either because of very accurate binding with the dressing or because of spontaneous adherence of the graft to the granulating surface—a commonly observed phenomenon Partial success in grafting should not satisfy the surgeon Any degree of failure ought to be critically analyzed

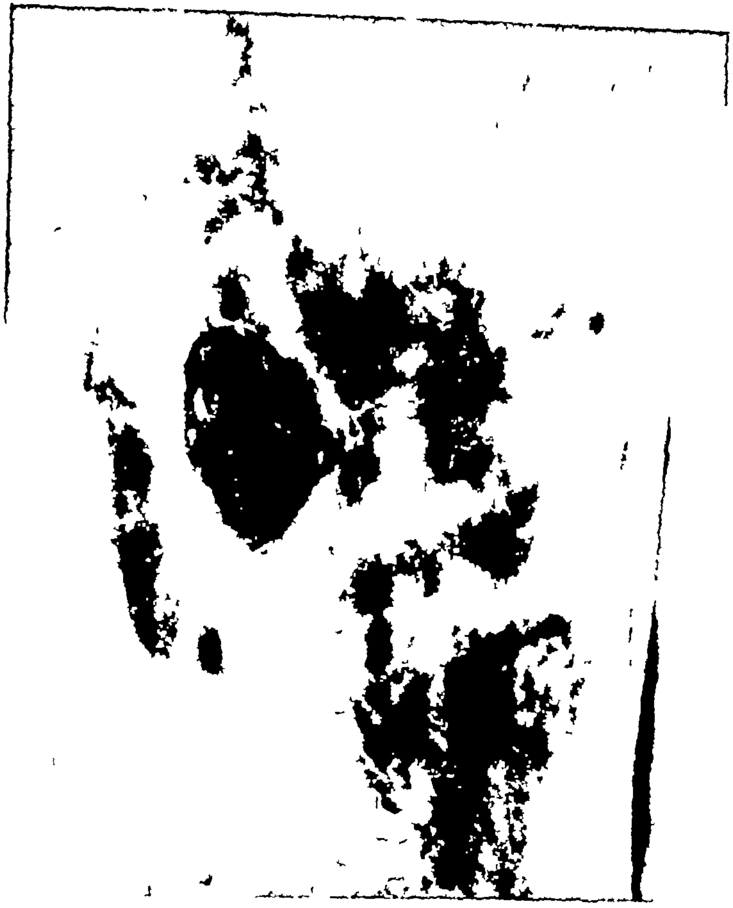

Fig 1 —Epidermoid carcinoma that developed in a burn scar of 20 years duration

Postoperative Care

Osmotic interchange of metabolites probably accounts for the early nutrition of the graft until blood vessel communication between the recipient site and the graft is established at about 72 hours During the first 72 to 96 hours motion between the graft and the recipient bed may disrupt growing vessels and thus destroy the graft Therefore, most dressings should remain undisturbed for four to five days unless a hematoma is suspected or evidence of infection demands an earlier change Inspection of the wound on the fifth or sixth postoperative day is usually early enough At that time any overlapping, nonviable graft should be trimmed away, all sutures removed, and any exudate gently wiped away Any accumulations of serum or blood under the graft should be evacuated The timing of subsequent dressings will depend on the condition of the wound If carefully done, the changes of dressings cannot be too frequent until solid healing has been established, usually by the 14th day The patient may then wash the area gently with soap and water, in a bathtub if desirable, and apply a firm, dry dressing In general, ambulation can be started with graded activity at the third week The fourth week can be spent increasing this activity until at the end of one month, unlimited mobility is permitted Compressive supportive dressings for at least six months and in some cases throughout the rest of the patient's life may be desirable

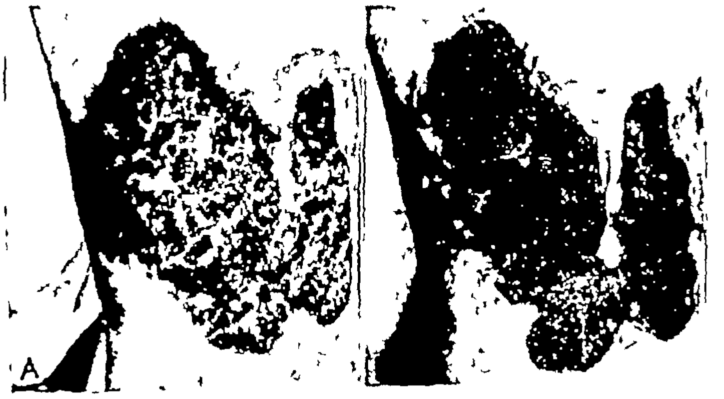

Fig 2 —A appearance of infected ulcer on day of admission B, same ulcer five days later after daily mechanical cleansing

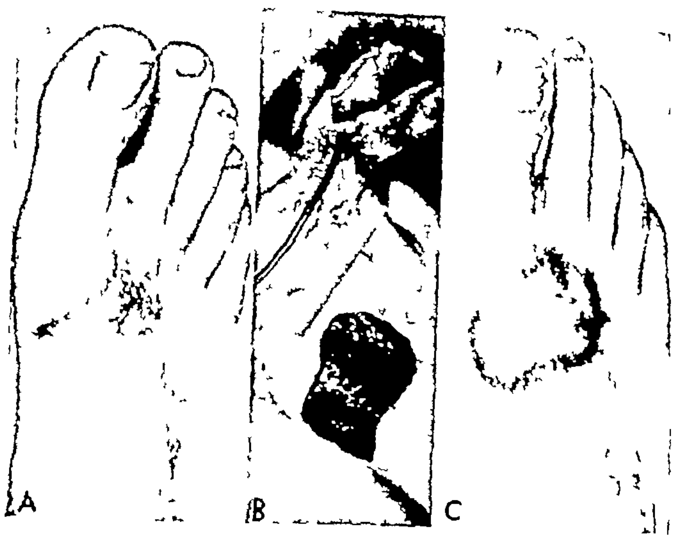

Fig 3 —A chronic ulcer of eight years duration following laceration B extent of surgical excision prior to skin grafting C healed skin graft six months later

Report of Cases

Case 1 —A 32-year-old male had a chronic ulcer secondary to a burn of the leg, which occurred 20 years previously The persistent open ulceration behind the knee developed into an epidermoid carcinoma (fig 1) Treatment at this time requires wide excision and application of a split-thickness skin graft, followed by a regional node dissection

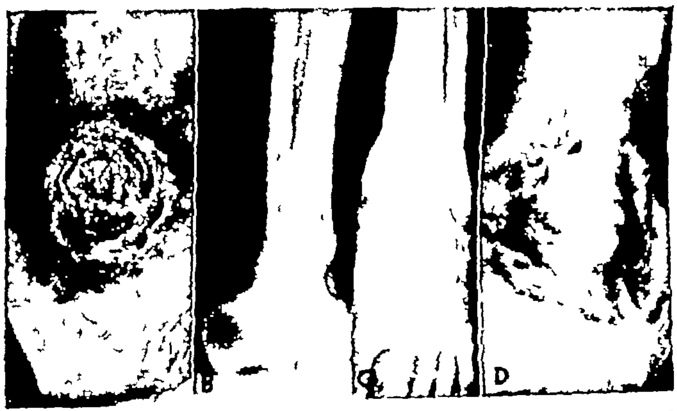

Fig 4 —A chronic traumatic ulcer with fibrotic and calcareous bed B and C x-rays showing subcutaneous calcium in region of ulcer D, healed skin graft after excision of fibrotic calcareous tissues

Case 2 —A 35-year-old male had an acute infection of the lower leg that led to skin necrosis (fig 2A) The granulations were edematous and covered with copious amounts of exudate

After five days of daily mechanical cleansing the granulations became cherry red with much less exudate (fig 2B) Skin grafting without excision was successfully carried out

Case 3 —A 25-year-old male, who eight years ago lacerated the dorsum of his right foot while diving has had since then persistent drainage with four episodes of acute infection requiring hospitalization Physical examination (fig 3A) revealed a heavy scar measuring 5 by 3 cm with drainage in the center The treatment consisted of total excision of the scarred area down to the peritendinous tissues (fig 3B) and application of a thick split-thickness graft (fig 3C) The foot is now free from drainage for the first time in eight years and the patient has resumed full athletic activities Total hospitalization was 12 days

Case 4 —A 59 year-old painter who fell while working injured the lateral aspect of his left ankle The resulting painful ulceration failed to respond to bed rest and the application of antibiotic dressings (fig 4A) There was x-ray evidence of marked subcutaneous calcification throughout the entire area (fig 4B and C) Application of a split-thickness skin graft elsewhere was unsuccessful because of failure to excise the infected fibrotic, calcareous tissues After appropriate daily wound care a total excision of the ulcer with the fibrotic, calcareous bed was performed to the level of the periosteum and paratenon. A split-thickness skin graft was applied producing a functional skin covering (fig 4D) The patient is now free of pain and has been working at his original job for two years

Summary and Conclusions

In dealing with any wounds of the lower extremity the primary purpose should be to secure a closed wound in the shortest time possible by the simplest possible method Closure of the wound will reduce the tissue edema and its associated fibrosis and will improve the stability of the skin covering In chronic ulcerations with both surrounding and underlying fibrosis and tissue ischemia, total excision of the involved area and repair with a healthy functional skin graft should be carried out The question should not be whether the wound will heal without a graft but rather whether the use of a graft will give longer and better function One must always remember that the resilient layer of the skin is the dermal pad and that a thin epithelial layer covering rigid scar tissue may be broken by relatively minor trauma Only by careful attention to the details of wound care can success in skin grafting be expected

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CLINICAL EVALUATION OF SALINE SOLUTION THERAPY IN BURN SHOCK

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• *A comparison was made between two groups of severely burned patients, one group being treated with large volumes of saline solutions mainly by mouth, the other group being treated with colloids, dextrose, and water with little sodium by vein The treatment was intended especially to relieve the mortality due to shock during the first 48 hours, after which time there was no further difference in the treatment of the two groups All accessory therapy was identical in the two groups, and since they were made up by strict alternation when admitted they were comparable as to age, sex, severity of burn, and other significant factors*

Among 110 children so studied, no significant difference was found between the two groups as to 48 hour mortality or ultimate total mortality The same was true for 83 adults The patients receiving the saline solution retained the fluid better, as indicated by records of body weight, and vomited less than those who received the colloid treatment Both groups fared much better than did 133 patients treated by other methods during the three years that preceded this study

This report presents the data obtained from the burn shock study in progress in Lima, Peru, during the past three and one-half years The study was initiated as an extension of the work in experimental traumatic shock by Drs Rosenthal, Tabor, and Millican,[1] who, along with investigators in other laboratories, demonstrated the magnitude of the fluid and electrolyte disturbances in shock, the fate of administered therapy, and the effectiveness of saline solutions, particularly orally, upon the mortality from shock in experimental animals Since a high mortality, especially in children, presented a grave problem in the treatment of burns in Peru, there was a great need for a comparatively simple and inexpensive method to prevent death during the shock period

The project has had as its principal objective the evaluation of the efficacy of saline solution given in large quantities, chiefly orally, as an emergency treatment for burn shock. Such information might be useful in the treatment of burns in mass catastrophes or in areas throughout the world where adequate medical care cannot be obtained or where plasma, blood,

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From the National Institute of Arthritis and Metabolic Diseases National Institutes of Health, U S Public Health Service Bethesda, Md (Dr Markley) colloids, or other intravenous therapy may not be available Other objectives were to determine whether saline solution in large quantities produced toxic effects and to study changes in hemodynamics and water and electrolyte balance during therapy

Emphasis was placed on maintaining adequate controls, for until the time of the Peru project there had been no report in the literature of any large-scale, well-controlled clinical evaluation of one type of therapy compared with another under identical conditions on an alternate case basis An alternate case basis of therapy was mandatory, in that such an arrangement was the only way of avoiding selection of cases or therapy by the physician and the only way of comparing two groups simultaneously under identical conditions Two separate studies were designed to evaluate various therapy regimens in burns involving 10% or more of the body surface area on a strictly alternate therapy basis The first of these studies, which forms the basis of this report, was a comparison of treatment with isotonic saline solutions administered in quantities of 15% of body weight during the first 48 hours after thermal injury, with treatment consisting of plasma, blood, or colloid supplemented with dextrose and water, the second aspect of the problem, which was initiated during the past year, is a comparison of one group receiving isotonic saline solutions in the same quantity as described above with another group receiving adequate plasma therapy supplemented with amounts of isotonic saline solutions equivalent to 15% of body weight (The term saline solution is used throughout this paper to mean an isotonic solution of a mixture of salts, usually those of sodium For exact composition of the solution, see Materials and Methods)

The experimental basis for giving large amounts of fluids and electrolytes in traumatic shock was first indicated by the studies of Underhill[2] on sodium and chloride changes in burn shock in dogs, of Blalock[2] on fluid loss into the injured area of traumatized dogs, and of Allen[2] on isotonic sodium chloride solution therapy in rats Rosenthal developed quantitative methods for the study of shock in mice and was able to demonstrate that a 90 to 98% survival from a lethal degree of burn or tourniquet trauma could be achieved by the oral or parenteral administration of a quantity of an isotonic sodium chloride solution equivalent to 15% of body weight during the first 24 hours after thermal injury Later in the experiments of Rosenthal, Tabor, and Millican[1] and Fox[2] the need for these large amounts of fluid and electrolytes was elucidated by the capacity of the injured areas to swell and to take up administered fluids, electrolytes, and proteins and in the subsequent diminution of blood volume and dehydration of the uninjured tissues The therapeutic efficacy of isotonic sodium chloride solutions in experimental shock in animals was confirmed by Harkins, Prinzmetal, Mover, Hecter, Parkins, McCarthy, and others[2]

The administration of variable quantities of saline solution in burn shock in man has been practiced for many years, however, prior to the experimental work in animals the magnitude of the fluid and electrolyte disturbances was not fully recognized and the amounts administered clinically were, for the most part, made quate in the light of present knowledge Both Davidson[3] in 1926 and Underhill[4] in 1930 recommended the use of isotonic sodium chloride solution in the treatment of burns, but, generally, during this period saline solutions were considered of little or no value, while plasma was considered the fluid of choice[5] Nevertheless, after the demonstration of the survival of shocked mice given isotonic sodium chloride solution orally, Fox successfully treated a group of burned patients in 1944 with orally given isotonic sodium lactate solution[6] Then, in 1945, the subcommittee on shock of the National Research Council recommended the use of large quantities of salt solutions in addition to large quantities of plasma in the treatment of burn shock[7] Since that time other authors[8] have advised the administration of salt solutions as adjuvant therapy to plasma, blood, and other colloids as essential in the adequate treatment of burn shock

Materials and Methods

This report presents the results on the study of 110 severely burned children aged 2 months to 11 years and 83 burned adults aged 12 to 68 years Forty per cent of the children and 90% of the adults suffered burns due to flames or fire, while the rest of the burns were produced by hot fluids The following types of cases were excluded from the study (1) burns involving less than 10% of body surface area, (2) pulmonary burns, (3) burns in patients over age 68, (4) burns not treated within eight hours, and (5) cases in which death occurred within two hours after treatment had begun The patients were brought to the hospital from one to four hours after thermal injury had occurred On admission they were weighed and the extent of the burns was plotted on a diagram devised by Lund[9] If the burn involved 10% or more of the body surface area the patient was placed in one of two therapy groups, "colloid" or "saline solution," with strict alternation of therapy practiced between these groups The orally given saline solution was prepared by dissolving 5 5 gm of sodium chloride and 4 0 gm of sodium bicarbonate in 1 liter of water (making a solution containing 140 mEq of sodium, 93 mEq of chloride, and 47 mEq of bicarbonate per liter) *The sterile, intravenously given solution contained 220 mg of calcium chloride dihydrate, 6 55 gm of sodium chloride, 2 55 gm of lactic acid, and 1 15 gm of sodium hydroxide in 1 liter of water (making a solution containing 141 mEq of sodium, 114 mEq of chloride, 28 mEq of bicarbonate, and 1 5 mEq of calcium per liter)

Children —Children in the colloid group were given intravenously, in divided dosage, an average quantity of 1 cc of plasma, blood, or povidone (PVP) per kilogram of body weight for each percentage of area burned (averaging 2% of body weight) during the first 24 hours after burning and half that amount (averaging 1.2% of body weight) in the second 24-hour period. This quantity of colloid was calculated with the formula of Evans[6b] and is considered adequate therapy by most surgeons. Eight per cent of the children in this group received blood in quantities varying from 0.2 to 2.7 cc. per kilogram of body weight for each percentage of area burned during the first 48-hour period after thermal injury, and 20% of the children received povidone during this same period in quantities varying from 0.5 to 5.9 cc. per kilogram of body weight for each percentage of area burned. All of the children in this group received a quantity of plasma that varied from 0.2 to 1.7 cc. per kilogram of body weight for each percentage of area burned. No additional fluid containing sodium was given and the remainder of the liquid administered was supplied as sucrose in water orally or as 5% dextrose in water intravenously. The total amount of fluid given in the first 48-hour period after thermal injury averaged 20% of body weight.

The children in the saline group were given an average quantity of isotonic saline solution by oral or intravenous route exclusively or by a combination of the two equivalent to 11% of body weight during the first 24-hour period after burning and 6% of body weight during the second 24-hour period. If any additional liquid was given, it was administered as dextrose in water. Total quantity of fluid given during the first 48-hour period averaged 20% of body weight. At no time during the 48-hour postburn period was plasma, blood, or povidone given to this group.

Adults.—Adult patients in the saline group received an average quantity of isotonic saline solution by oral or intravenous route exclusively or by a combination of the two equivalent to 10% of body weight during the first day after thermal injury and half that amount the second day. No additional liquid was administered either orally or intravenously. At no time was blood, plasma, or povidone given to these patients during this 48-hour period.

The patients in the adult colloid group with more than 25% surface area burned received in divided doses an average quantity of 0.37 cc. of plasma, blood, or povidone per kilogram of body weight for each percentage of area burned (averaging 1.5% of body weight) during the first 24 hours after the injury and half that amount (averaging 0.9% of body weight) during the second 24-hour period. All additional liquid in this group was given as water orally or as 5% dextrose in water intravenously. Of the 22 patients with 10 to 25% surface area burned, 10 received an average quantity of colloid equal to that received by those with more extensive burns, while 12 received only dextrose and water but no colloid therapy, due to an inadequate supply of colloid during the early part of the project. These patients who received only dextrose and water have been included in the colloid group for completeness of presentation, since their exclusion would not alter the final results, due to the fact that no 48-hour mortality occurred in adults with this degree of burn either in this or the saline group (table 1).

Of the adults receiving colloid, 20% (six patients) received blood during the first 48 hours after thermal injury in quantities varying from 0.08 to 0.6 cc. per kilogram of body weight for each percentage of area burned, and 13% (four patients) of the adults received povidone during this period in quantities varying from 0.6 to 1.3 cc. per kilogram of body weight for each percentage of area burned. Seventy-five per cent of the adults (23 patients) received plasma during the first 48 hours in quantities of 0.2 to 1.2 cc. per kilogram of body weight for each percentage of area burned. The total amount of liquid (dextrose, water, and colloid) given in the first 48 hours after burning averaged 10% of body weight.

Procedure.—Essentially, then, a comparison was made in children between one group given large volumes of saline solutions, chiefly orally, and another group given adequate colloid therapy supplemented with dextrose and water but with little sodium. In adults the comparison was made between saline solutions and a smaller amount of colloid. During the course of the experiment it was decided, after discussion with several consultants, not to increase the therapy in the control group of adults for the following reasons: 1. A low mortality from shock was present in this group. 2. This amount of colloid might be comparable to the optimum quantity possible to administer under conditions of mass casualty; it represented twice the amount usually employed in Peru. 3. The number of cases at this level of therapy is not yet adequate for final conclusions. It must be emphasized that treatment in the two groups differed only during the first 48 hours after injury. When patients had survived that period there was no difference in therapy between the colloid and saline groups.

Blood pressure, pulse rate, respirations, and rectal temperatures were recorded on admission and, if the patient manifested signs of shock with a systolic blood pressure lower than 90 mm. Hg, intravenous therapy was started and followed by oral administration of fluid when the patient's blood pressure rose above 90 mm. Hg. In both therapy groups half of the liquid administered during the first 24 hours after burning was given 8 to 12 hours after burning. Infants were given fluid orally by a constant drip technique through a tube passed through the nose to the stomach, whereas children over 2 years of age and adults drank the fluid. If repeated vomiting or diarrhea occurred, oral administration of fluid was suspended and the intravenous route was utilized. The speed and quantity of fluid ingested was carefully controlled and recorded, and vomitus and urine were accurately collected and measured during this period when possible. Blood pressure, pulse rate, respirations, and temperature were measured every two hours during the first two days. Clinical notes were made every six hours.

All accessory therapy was identical in both groups and consisted chiefly of measures routinely employed in the hospitals prior to the present study. When sedation was necessary, phenobarbital was used in doses of 100 mg. for children and 200 mg. for adults. Oxygen by nasal catheter and injections of Coramine (25% solution of nikethamide) were given on occasion. Sodium (crystalline) penicillin G was given routinely to all patients in doses of 50,000 units every four hours in children and 100,000 units every three hours in adults. Many of the children in both groups, but none of the adults, received intramuscular injections of desoxycorticosterone acetate during the shock period. No epinephrine (Adrenalin) or epinephrine-like compounds were administered. Local therapy consisted of the exposure method with the application of Prontyl (5.0 gm. of azosulfamide, 0.05 gm. of tetracaine, 12.5 gm. of solution of colloidal gelatin, and 100 cc. of distilled water) to the burn in children, while the adults received no chemotherapeutic or antibiotic agent locally.

TABLE 1.—*Mortality in Burned Patients*

Burn % of Body Surface Area	No. of Cases	Mortality, Within 48 Hr, No.	Mortality, Within 48 Hr, %	Mortality, Total, No.	Mortality, Total, %
	Saline Group, Adults				
10-25	20	0	0	2	10
26-50	13	0	0	6	46
51-75	4	0	0	3	75
76-100	3	0	0	3	100
Total	40	0	0	14	35
	Colloid Group, Adults				
10-25	22	0	0	1	5
26-50	13	1	8	6	46
51-75	4	1	25	4	100
76-100	4	2	50	4	100
Total	43	4	10	15	35
	Saline Group, Children				
10-20	37	3	8	15	40
21-30	17	6	35	14	83
31-40	2	0	0	1	50
41-100	4	3	75	4	100
Total	60	12	20	34	56
	Colloid Group, Children				
10-20	29	3	10	11	38
21-30	13	4	30	12	92
31-40	3	1	33	3	100
41-100	5	2	40	5	100
Total	50	10	20	31	62

Ten cubic centimeters of blood was withdrawn from the femoral, jugular, or anticubital veins into a heparinized syringe on admission and at intervals of approximately 8, 18, 24, and 48 hours after burning. The following laboratory analyses were performed within an hour after collecting the blood: hematocrit, red and white blood cell count, and differential count with standard methods, absolute eosinophil count by Best's technique, plasma sodium and potassium levels using the Process and Instruments flame photometer with lithium as internal standard, plasma chloride level by method of Van Slyke and Hiller, plasma alkaline reserve by manometric method of Peters and Van Slyke, red blood cell concentration of sodium and potassium determined in the flame photometer after the red blood cells had been pipetted directly from blood centrifuged at 3,000 rpm for 30 minutes and hemolyzed in water containing lithium, and total plasma protein by specific gravity method of Van Slyke. Complete urinalyses for density, pH, albumin, glucose, acetone, blood, and sediment were done daily. Determinations of 24-hour urinary excretion of sodium, potassium, and chloride were made with use of the same methods described above. The patient was accurately weighed on a stretcher balance at the end of each 24-hour period when possible.

TABLE 2.—*Statistical Analysis of Mortality Data*

Burn % of Body Surface Area	48-Hr Mortality %	95% Confidence Limits %	Total Mortality %	95% Confidence Limits %
	Saline Group, Children			
10-20	8	0-16	41	25-57
21-30	35	11-59	82	61-100
Total	20	10-30	57	44-70
	Colloid Group, Children			
10-20	10	0-22	38	20-56
21-30	31	5-57	92	70-100
Total	20	9-31	62	48-76
	Saline Group, Adults			
10-25	0		10	0-23
26-50	0		46	18-74
Total	0	——	35	20-50
	Colloid Group, Adults			
10-25	0		5	0-14
26-50	8	0-23	46	18-74
Total	10	1-19	35	20-50

Results

As a consequence of strictly alternating cases between the colloid and saline solution therapy groups, material was obtained in comparable groups with respect to the following pertinent variables: (1) percentage of body surface area burned, (2) percentage of body surface area with full-thickness burn, (3) causative agent, (4) age, (5) sex, and (6) interval between thermal injury and commencement of therapy. The resulting data can, therefore, be analyzed by over-all groups or by subgroups wherever the total numbers are large enough to permit valid comparisons.

Table 1 gives the number of patients in each stratum of percentage body burn, the 48-hour mortality in each group, and the total mortality in each group. Table 2 gives the 95% confidence limits on the percentage of 48-hour mortality and percentage of total mortality.

It is at once apparent that there was no major difference in 48-hour mortality or total mortality between the saline and colloid groups in any of the burn groups in children there was a 20% 48-hour mortality in both saline and colloid groups, with a 56% total mortality in the saline-treated patients and a 62% total mortality in the colloid-treated patients In adults, there was no 48-hour mortality in the saline group (including seven patients with a burn greater than 50%) and a 10% 48-hour mortality in the colloid group (including eight patients with a burn greater than 50%) Both groups had a total mortality of 35% The results in adults suggest that during the shock period adequate saline solution therapy is superior to inadequate colloid therapy, although final conclusions must await a larger number of cases in this series

In figure 1, cumulative mortality in children and adults is plotted against time Included in the graph of cumulative mortality in children is a curve labeled "preproject group, showing mortality in a group of 133 children treated during the three years prior to the commencement of the project This group represents therapy with insufficient colloid and electrolytes and serves as an inadequately treated control as these children received only small amounts of plasma supplemented with dextrose and water or no plasma at all It was not possible to obtain sufficient preproject data in adults to construct a similar curve

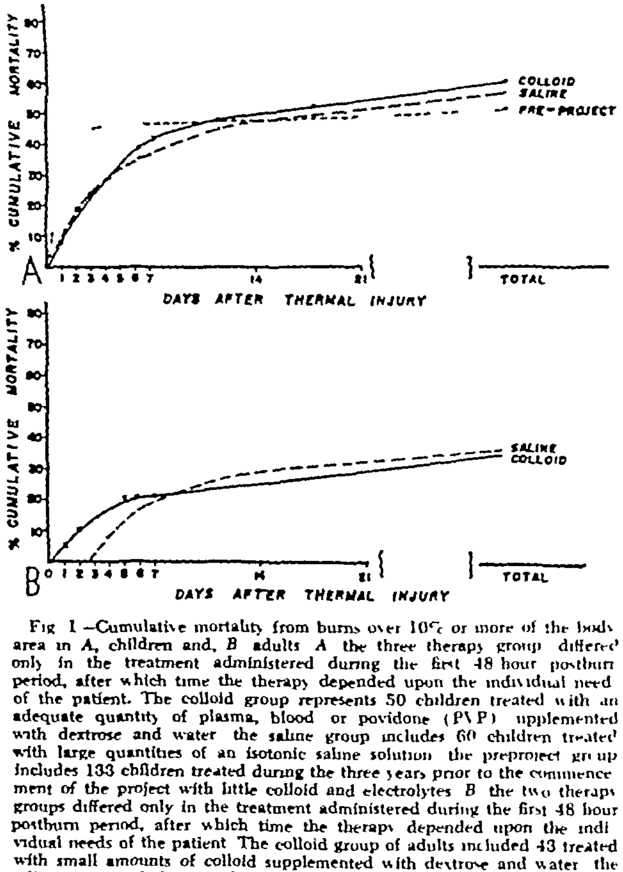

Fig 1 —Cumulative mortality from burns over 10% or more of the body area in A, children and, B adults A the three therapy groups differed only in the treatment administered during the first 48 hour postburn period, after which time the therapy depended upon the individual need of the patient. The colloid group represents 50 children treated with an adequate quantity of plasma, blood or povidone (PVP) supplemented with dextrose and water the saline group includes 60 children treated with large quantities of an isotonic saline solution the preproject group includes 133 children treated during the three years prior to the commencement of the project with little colloid and electrolytes B the two therapy groups differed only in the treatment administered during the first 48 hour postburn period, after which time the therapy depended upon the individual needs of the patient The colloid group of adults included 43 treated with small amounts of colloid supplemented with dextrose and water the saline group includes 40 adults treated with large quantities of an isotonic saline solution

Since the curves of the saline-treated group and colloid-treated group in children are quite similar in shape throughout the entire course of hospitalization, this method of representation reemphasizes the similarity of mortality between the two groups and demonstrates as well that saline solution did not increase the mortality in the postshock period, as compared with the mortality of the colloid-treated cases during the same period The preproject curve in children does show, however, a higher mortality than the saline solution and colloid curves during the first 48-hour postburn period, although it, too, approaches the same final mortality as the other two The difference in 48-hour mortality of the preproject cases shows statistical significance with use of the 95% confidence limits method, but it must be emphasized that such comparisons are not simultaneous nor under identical conditions The routes by which the fluid was given in the saline and colloid groups are illustrated in table 3 The saline-treated groups, both children and adults, received fluid therapy mostly by the oral route exclusively and only rarely by the intravenous route exclusively, whereas the colloid-treated patients, both children and adults, received most of the fluid administered by a combination of oral and intravenous routes, with a greater percentage of cases receiving fluid by the intravenous route exclusively

TABLE 3 —*Routes of Fluid Administration*

Treatment Group	% of Total Cases by Type of Route		
	Oral Exclusively	Oral and I V	I V Exclusively
Children			
Saline	55	43	2
Colloid	0	78	22
Adults			
Saline	56	39	5
Colloid	17	68	15

Toxic reactions to therapy, as determined by the incidence of vomiting diarrhea, generalized edema, and pulmonary edema, are illustrated in table 4 In general, it can be seen that the saline-treated patients tolerated the saline solutions well and showed no increased tendency toward vomiting as compared with the colloid group The incidence of diarrhea was slightly higher in the saline group when saline solution was given orally in large quantities, but with additional experience in the more uniform administration of saline solution over a 24-hour period, only a few cases of diarrhea have been observed during the last two years Of those patients treated with saline solution who died during the shock period, not one child or adult showed clinical signs of generalized or pulmonary edema before death or at autopsy (table 4)

TABLE 4 —*Toxic Effects* of Therapy During Shock Period*

Treatment Group	No of Cases	Incidence of	
		Vomiting %	Diarrhea %
Children			
Saline	60	28	25
Colloid	50	30	8
Adults			
Saline	40	35	18
Colloid	43	44	0

* There was no incidence of generalized or pulmonary edema

Because it has been customary to evaluate therapy on the basis of its effect on clinical shock, an attempt has been made to select some such basis for comparison of the two groups Since clinical signs and symptoms depend so greatly upon subjective factors, blood pressure was selected as being, perhaps, the least subjective sign of shock The incidence of hypotension in both therapy groups is demonstrated in figure 2 It is apparent in both children and adults that the greater the percentage of burn the greater was the incidence of hypotension on admission to the hospital In both the saline and colloid groups the incidence of hypotension increased during the first 48 hours after burning but declined at the end of this period In children, at the termination of 48 hours the incidence of hypotension in the saline group was approximately the same as that seen on admission, while in the colloid group there was a greater incidence of hypotension at the end of 48 hours as compared with that on admission At the end of 48 hours both adult therapy groups showed approximately the same incidence of hypotension as that seen on admission

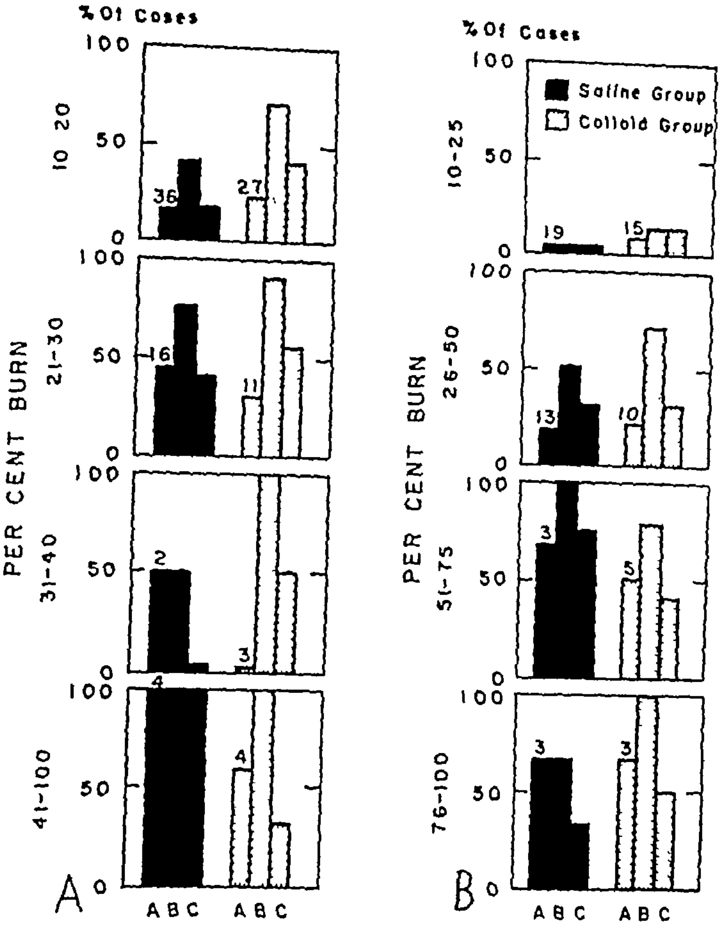

Fig 2 —Incidence of hypotension in burned patients with systolic blood pressure below 90 mm Hg *A* children *B* adults *A* on admission, *B*, during first 48-hour period after burning for a minimum period of 4 hours, and *C*, at the end of 48 hours The numbers above the bars represent the number of cases studied in each group

Average daily urine volumes in children during the 48 hour therapy period are plotted in figure 3A and in adults in figure 3B, using only those cases in which accurate urine collections could be accomplished In children, where volume of fluid intake was equal in both therapy groups, the colloid group demonstrated a greater volume output than the saline group In adults, where the volume of fluid intake was greater in the saline group, the urinary output was greater in the saline group, however, as demonstrated in the graph, the patients in the colloid group with a 10 to 25% burn excreted a larger percentage of the ingested fluid via the kidneys than the saline group In adults, during the first 48-hour postburn period, 14% of the colloid patients and 10% of the saline patients had urine outputs of less than 100 cc during 24 hours, and most of these patients had burns over 50% of the body surface area

Retention or loss of body fluid during the therapy period based on body weight measurements on admission and at intervals of 24 and 48 hours after burning is demonstrated in figure 4*A* for children and figure 4*B* for adults The saline-treated children and adults consistently showed a body weight gain denoting retention of fluid, whereas the colloid-treated patients on whom sufficient data had been obtained did not demonstrate a consistent tendency to gain weight but on the contrary, did show a tendency to lose weight in most cases

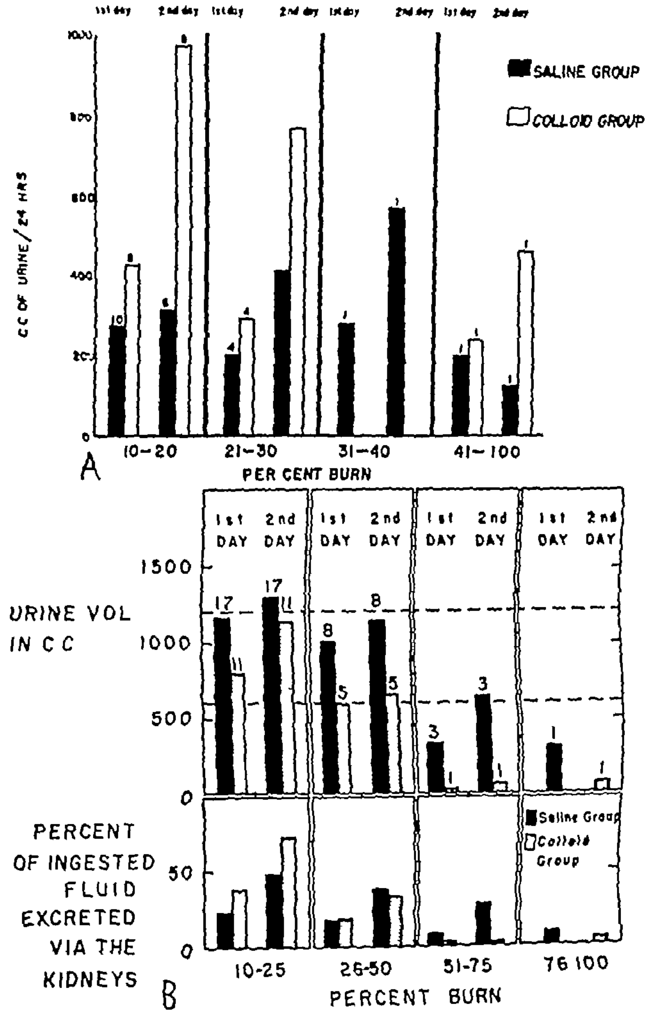

Fig 3 —Average daily urinary output in, *A*, burned children and *B*, burned adults Only patients in whom accurate urine collections could be accomplished and in whom no vomiting occurred are included The numbers above the bars represent the number of cases studied in each group The dotted lines in *B* represent the 24-hour urinary output variation considered to be adequate by most recent investigators

Results of the first 48-hour period after burning in children with burns of 10 to 20% of body surface area (where numbers of cases studied are sufficiently large for statistical evaluation) are summarized in table 5

Hematocrit and plasma protein values were significantly greater in the colloid-treated cases during the first and second day after burning Plasma sodium and chloride concentrations were significantly lower in the colloid group, plasma potassium concentrations were higher in the colloid group, and metabolic acidosis was present in both groups but to a greater extent in the saline group Retention of sodium and chloride was more prominent in the saline group than in the colloid group, which had a low sodium chloride intake, while a negative potassium balance of similar severity was present in both groups

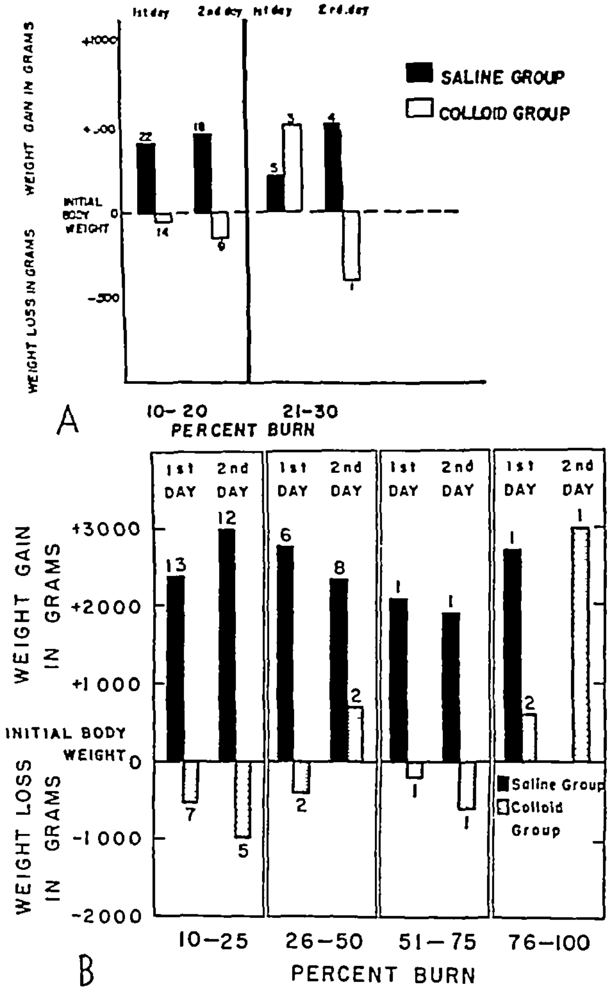

Fig. 4 —Average body weight change in *A*, burned children and *B* burned adults The numbers above the bars represent the number of cases used in the computation of the mean

Comment

In the past the efficacy of therapy in clinical shock has been judged by the response of the hematocrit, hemoglobin level, plasma proteins, and urinary volume,[10] but there has been a trend recently to select mortality as a more reliable criterion, just as mortality has been used for the same purpose in animal experimentation [11] Bull and Squire in England [12] and Moyer in the United States [8a] have statistically analyzed total mortality over a period of years with the Probit technique (a statistical method to convert a sigmoid curve into a straight line) in an effort to compare various therapeutic regimens in different hospital units That method, however, had defects, in that it analyzed only total burn mortality and included a great number of variables not related to shock that may not have been identical at different times and places Late deaths in burns constitute a high percentage of the total deaths, they differ etiologically from the early deaths due to thermal trauma, with which this study is primarily concerned The Peru burn project study is the first study in man that has been controlled with a comparison of strictly standardized therapeutic regimens during the shock period under simulanteous and identical conditions on an alternate case basis For this reason, valid conclusions may be made from the data in the evaluation of one type of therapy as compared with another during the shock period

The total mortality of burned patients in Peru falls within the expected range of deaths published by Bull and Squire [12] and Moyer,[8a] but the total mortality of burned children in Peru greatly exceeds that reported by Bull and Squire The reason for this difference in mortality of burned children may be due to (1) a high incidence of Pseudomonas aeruginosa septicemia after the shock period and (2) a high incidence of faulty nutrition in children in Peru The high susceptibility of these children to fatal shock and the high delayed mortality may raise the question of whether the results of this study are applicable to other localities where lower mortalities are encountered While no definitive answer can be given to this question, it is probable that the basic mechanisms of shock and the principles of replacement therapy during the early period following trauma will be similar, even though

Table 5 —*Laboratory Data in Children with Burns of Ten to Twenty Per Cent of Body Surface Area*

		1st 24 Hr		2nd 24 Hr	
Laboratory Analysis	No of Cases*	Colloid Mean ± S E†	Saline Mean ± S E	Colloid Mean ± S E	Saline Mean ± S E
Hematocrit %	25	44.4±0.9	41.3±0.8	39.6±1.2	33.4±0.9
Plasma protein gm / 100 cc.	25	6.53±0.1	5.97±0.1	6.13±0.2	5.31±0.1
Plasma sodium mEq /liter	25	129.6±0.9	134.3±0.7	125.6±1.1	133.1±0.8
Plasma potassium mEq / liter	27	4.40±0.1	4.16±0.1	4.84±0.2	3.59±0.1
Plasma chloride mEq / liter	20	95.5±0.9	102.1±0.9	95.0±1.6	101.2±1.3
Plasma bicarbonate, mEq /liter	11	19.0±1.1	19.4±0.5	20.5±0.6	17.6±1.3
Electrolyte Balance ‡					
mEq /24 Hr Sodium	8	+ 7	+156	−10	+71
Chloride	8	+13	+123	− 5	+63
Potassium	8	−15	− 28	−26	−24

Only those patients who did not vomit and in whom accurate urinary collections were made are included in the balance data

† S E = standard error

Balance of electolyte equals intake of electrolyte minus urinary output of electrolyte differences in susceptibility exist This is borne out by the results in adults, who were much more resistant to burn shock

Some doubt may be raised about the validity of evaluating mortality in shock as limited to the deaths during the first 48-hour period after thermal injury The chart of cumulative mortality plotted against time clearly demonstrates that no matter what point is selected as the end of the shock period the mortality in both groups shows no significant difference Since it was not possible to get an untreated control group of patients in Peru during the course of the project, data accumulated in children during the three-year period prior to the commencement of the project are included This preproject group, which represents inadequate treatment with both colloid and electrolytes, shows a marked increase in the 48-hour mortality when compared with the saline or adequate colloid groups In the true sense of the word, however, the preproject group cannot be used as an inadequately treated control group, since other conditions influencing survival during that period may not have been identical to those during the time of the present study

The fact that the 48-hour mortality data in children show no major difference between the group treated with saline solution alone and the group treated with adequate colloid plus water (with little sodium) does not mean, necessarily, that either therapy regimen is the best available The results of the second part of the study now in progress, comparing two groups given equivalent amounts of sodium and fluid therapy but with one group receiving an adequate amount of plasma, may shed some light on this matter It does appear, however, from the results we have presented that orally given saline solution therapy alone has great practical value under emergency conditions

Summary and Conclusions

We have studied 110 children and 83 adults from Peru suffering from burns that involved 10% or more of the body surface area In burned children, treatment was strictly alternated between one group that received orally and/or parenterally a quantity of isotonic saline solution equivalent to 17% of body weight during the first 48 hours after thermal injury and another group that received during the same time period an average quantity of colloid solutions equivalent to 3 2% of body weight supplemented with a quantity of dextrose and water to equal the total quantity of fluid administered to the former group

A similar study was conducted in adults, comparing one group receiving 15% of body weight of isotonic saline solution with another group receiving an average of 1 7% of body weight of colloid solutions supplemented by 8 3% of body weight of dextrose and water In both children and adults saline solution was administered exclusively by the oral route in 55% of the cases

In general, saline solution therapy was administered without difficulty, and no serious early or late untoward effects were encountered No pulmonary or generalized edema occurred In both saline and colloid groups the incidence of hypotension increased to a similar extent during the first 48 hours after burning The patients in the saline group showed a consistent retention of fluid, whereas the colloid-treated patients excreted a larger percentage of the fluid ingested by way of the kidneys

The data collected on 48-hour mortality, cumulative mortality, and total mortality showed no major difference in mortality between the two therapy groups in children or in adults The two therapy groups were comparable with respect to the following pertinent variables (1) percentage of body surface area burned, (2) percentage of body surface area with full-thickness burn, (3) causative agent, (4) age, (5) sex, and (6) interval between thermal injury and commencement of therapy It is apparent from the mortality data that the oral administration of isotonic saline solution would be quite useful in case of mass catastrophes or in areas throughout the world where adequate medical care cannot be obtained or where plasma, blood, colloids, and other intravenous therapy may not be available

Addendum

Since this paper was written the following cases have been treated in the adult colloid group 10-25% burn, two cases, no 48-hour deaths, 26-50% burn, three cases, with one acute death, 51-75% burn, one case, with death in 24 hours, and 76-100% burn, two cases, with death within 48 hours This brings the over-all 48-hour mortality in the colloid group (51 cases) to 16% In the adult saline group 5 additional patients have been treated, with no deaths in 48 hours (total of 45 cases with no 48-hour mortality)

National Institute of Arthritis and Metabolic Diseases, Bethesda, Md (Dr Markley)

The study has been supported by a grant from the National Institutes of Health, Bethesda, Md, and has been sponsored by the National Institute of Arthritis and Metabolic Diseases in cooperation with the Universidad Nacional Mayor de San Marcos Lima Peru

Drs I S Ravdin, Carl Moyer, and the late Everett I Evans gave advice on several aspects of this study

Dr Alberto Hurtado furnished laboratory space in the Departamento de Fisiopatologia, Drs Gilberto Morey and Carlos Proano provided cases from their services at the Hospital del Nino Drs Belizario Sanchez and Fortunato Quesada helped make available the surgical wards in the Hospital Loayza and Hospital Dos de Mayo respectively, and Mr Jacob Lieberman, National Institutes of Health aided in the statistical analysis of the mortality data

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CLINICAL NOTES

SQUAMOUS CELL CARCINOMA OF ABDOMINAL WALL

REPORT OF A CASE

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A 66-year-old widow entered St. Luke's Hospital in January, 1955 Her presenting complaint was a mass on the anterior abdominal wall. Other than the presenting complaint, she considered herself to be in good health Seven years prior to admission, she noted a small area of irritation of the skin of the abdominal wall on the lower right side She treated the lesion with wet dressings however it failed to heal. Approximately five years later in falling, she traumatized the lesion, causing it to bleed Between May 1954, and January, 1955, she had anorexia and a weight loss of 37 lb (16 8 kg) No other gastrointestinal symptoms were elicited. From September, 1954 to January, 1955 the lesion grew rapidly from an estimated diameter of 3 5 cm to approximately 13 cm In December, 1954, the tumor began to bleed spontaneously, about every three days Furthermore it constantly produced a clear, sticky, watery fluid The quantities of blood and fluid could not be determined The patient stated that the blood soaked part of a handkerchief The clear fluid drainage necessitated a dressing change every two hours The drainage did not increase with liquid intake, nor did it contain food particles or fecal material.

Physical examination revealed a moderately obese white female in no acute distress An elevated, coarsely nodular, ulcerated mass was present on the abdominal wall in the right lower quadrant (fig 1) It measured 14 by 12 cm and was elevated as much as 4 cm from the surrounding skin surface It appeared hyperemic, was covered with clear, viscid fluid, and had a central crater 3 cm deep No intra-abdominal masses were palpable A chain of lymph nodes was noted in the right inguinal region No axillary, cervical, superficial abdominal or left inguinal nodes were palpable The hemoglobin level determination revealed 12 0 gm per 100 cc The hematocrit was 37% There were 8 550 leukocytes per cubic millimeter The total proteins were 6 9 gm per 100 cc, with 2 7 gm of albumin and 4.2 gm of globulin The history, physical examination, and laboratory studies were otherwise noncontributory

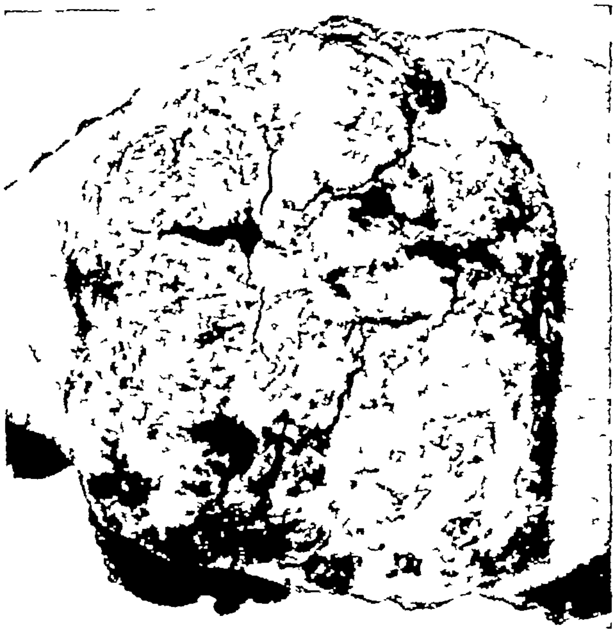

Fig 1 —Ulcerated fungoid squamous cell carcinoma. Tumor measured 14 by 12 cm and was elevated 4 cm

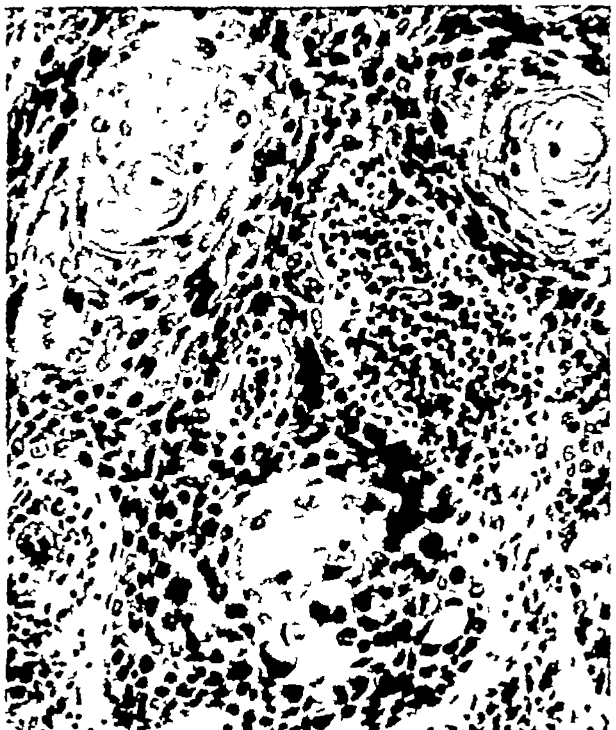

Fig 2 —Microscopic appearance of tumor Among atypical epithelial tissues are many cells in mitosis

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From the departments of surgery St Luke's Hospital and Northwestern University Medical School

A communication of the tumor with the gastrointestinal tract was considered because of the constant drainage, anorexia, and loss of weight It was ruled out by upper and lower gastrointestinal x-ray examination A biopsy of the tumor mass revealed squamous cell carcinoma (fig 2)

Under general anesthesia, an elliptical incision 30 by 15 cm in diameter was made around the base of the lesion The incision was through the abdominal wall fascia, exposing the muscles The tumor was removed, and a primary closure was accomplished Through a right inguinal incision the chain of lymph nodes was dissected Histological sections revealed squamous cell carcinoma with metastatic involvement of the right inguinal lymph nodes Some of the nodes were hyperplastic but revealed no cancer cells

The postoperative course was uneventful The patient has been examined at frequent intervals On March 8, 1956, she was free of evidence of local recurrence or distant metastases

Comment

It might be expected that a squamous cell carcinoma of seven years' duration, which had grown to enormous dimensions, would be widely disseminated and inoperable This is usually true in lip and mucous membrane lesions However, squamous cell carcinoma of the skin seldom behaves this way[1] There are many noteworthy features of squamous cell carcinomas of the skin Their slow and late lymphatic dissemination is well recognized Some more recently reported findings are worthy of consideration Numerous skin tumors that appeared to be squamous cell carcinoma, both grossly and microscopically, and that disappeared spontaneously have been reported[2] Occurring predominantly in men and tending to run in families, all of these tumors were well differentiated histologically Although individual tumors healed spontaneously, the tendency for these lesions to occur did not disappear With no treatment at all, most of these patients eventually succumbed to the metastases of a lesion that failed to heal Should the spontaneous healing process ever be understood, these tumors may point the way toward a new approach to cancer Early treatment of squamous cell carcinoma of the skin is, to be sure, still strongly advised

Keratocanthomas resemble squamous cell skin tumors The former undergo spontaneous resolution in four to six months It has been suggested that the keratocanthoma and the "self-healing squamous cell carcinoma" may be related[3]

In the surgical treatment of squamous cell skin lesions, removal of the neoplasm with a wide margin of normal tissue is usually considered essential This approach has been disputed These tumors usually have distinct gross limits Distant metastases are relatively rare and occur late Local recurrences are easily treated Therefore, cosmetic considerations should not be disregarded[4]

A histological appraisal of the adequacy of the surgical removal of these lesions indicates that false positive reports are frequent[4] The pathologist reported tumor cells at the margin of these surgical specimens Repeated examinations of the patients for two years failed to reveal a local recurrence rate significantly higher than in patients in whom the surgical specimens revealed no tumor cells at the margin There is no satisfactory explanation for these false positive reports It is possible that two years is an inadequate period for the development of local recurrences

Summary

A patient having a huge squamous cell carcinoma of the abdominal wall, with metastatic involvement of the inguinal lymph nodes, was treated by local excision of the tumor mass and inguinal lymph node dissection The tumor mass measured 14 by 12 cm and was elevated 4 cm The disease had been present for seven years The patient was free of evidence of local recurrence or distant metastases 13 months after surgery This report illustates the slow and late lymphatic dissemination of squamous cell cacinoma of the skin

Certain skin tumors that resemble squamous cell carcinoma both grossly and microscopically and that disappear spontaneously may be closely related to keratocanthomas The surgeon's clinical impression, the histological sections, and the cosmetic results should be considered in evaluating the type and extent of the surgical removal of squamous cell carcinomas of the skin

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Mental Health and the Aged —About half the resident population of the nation's mental institutions are persons past 65 Many of these older people may not require institutional care and, indeed, many require little medical care The same may be said of thousands of older people who are living out their lives in hospitals, homes for the aged, nursing homes, and similar institutions While many of these older persons do require institutional treatment with a more humane public attitude toward aging, Americans by the many thousand could be living useful and productive lives as members of the community From a public health point of view efforts to promote and maintain well-being among the aged are tragically meager when compared to similar efforts in behalf of children, adolescents, and younger adults We medicate, palliate, and tolerate older people as a group somehow set apart from the ongoing life of the community This separation has two major consequences First, it singles out and stigmatizes the older person, implying as it does an inferior status and accelerating whatever objective changes in vitality, energy, and capacity may exist Second, and stemming directly from such stigmatization, is the quickening pace of institutionalization, especially of the so called "senile" person From both a public health and a humanitarian perspective a halt or possibly a reversal of this process is demanded —B Kutner, Ph D, and W G Smillie, M D, The Problem of Mental Health Among the Aged, *American Journal of Public Health*, February, 1956

PREDNISONE IN THE MANAGEMENT OF IDIOPATHIC HEREDITARY LYMPHEDEMA (MILROY'S DISEASE)

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Idiopathic hereditary lymphedema may have its onset either at birth or at any time between childhood and early adulthood Certain authors insist that the eponym "Milroy's disease" should be restricted to those cases that have a congenital origin,[1] whereas others see no need for undue emphasis on the age at which the edema appears, inasmuch as the clinical picture is otherwise essentially identical[2] Milroy himself, in a 35-year follow-up report of the family he originally described, indicated that the age at which edema appears varies[3] The prevailing opinion appears to be well summarized as follows[4] "Primary lymphoedema is occasionally congenital, but more often it starts in childhood or adolescence and is then called lymphoedema praecox In its most severe form the disease may produce deformities like those of tropical elephantiasis, and the term elephantiasis nostras (meaning of our country) is then sometimes used" Families have been described in which both varieties of onset occurred In spite of the numerous genealogies studied with this disorder, the basic genetic patterns have not yet been accurately delineated

Conspicuous among the reported cases are instances of recurrent acute attacks" of pain, tenderness, redness, and swelling in the edematous legs, with fever, vomiting, and malaise[5] These episodes are self-limited and of relatively brief duration (two to seven days) Although the disease is often designated as "erysipelas-like" or "lymphangitis," only very rarely is it possible to establish a bacterial etiology, and response to antimicrobial therapy is very poor Such exacerbations may perhaps be considered to share certain characteristics with some of the manifestations of the various collagen disorders

Management of this disorder has been very difficult and disappointing Conservative and physiotherapeutic measures consistently fail to effect any significant reduction in the edema As a result, numerous surgical procedures have been devised for removal of the lymphedematous masses Repeated operations are frequently necessary, and great disfiguration usually occurs The purpose of the present report is to describe the spectacular reduction in edema brought about with prednisone in a patient with congenital, hereditary, progressive lymphedema Within one month, there occurred an approximately 80% reduction of edema, which has subsequently been maintained for 14 months with very small doses

Report of a Case

This 11-year-old girl was admitted to the pediatric service in May, 1955, regarding a presenting complaint of "swelling of both legs to the knees" Edema of one foot and ankle was noted at the time of birth and gradually spread to involve the other foot and ankle This persisted throughout childhood with little associated symptomatology, increasing with activity and decreasing after a night's rest When she was about 9 years of age she began to have recurrent attacks of fever (with temperature from 104 to 105 F [40 to 40 6 C]), abdominal pain and cramping, vomiting, and constipation, associated with an increase in the swelling of feet and ankles and redness, tenderness and heat These attacks recurred at intervals of 4 to 12 weeks and were not related to any apparent specific precipitating factors, although insect bites or minor traumas occasionally preceded an episode There was no response to antibiotic therapy, and hospitalization was occasionally required After a moderately severe attack in December, 1954 edema began to spread and eventually involved both legs and knees At the time of admission, the patient was in the waning period of a new attack, which had begun within the previous week In the several weeks preceding admission the patient had complained of vague arthralgia of the knees and ankles

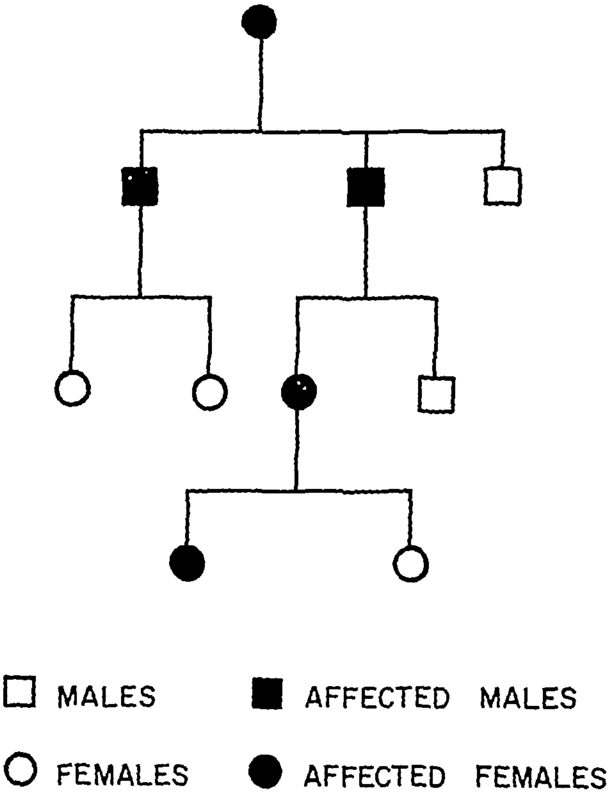

Fig 1 —Genealogy table indicating the incidence of this disease in four successive generations as described in the text The unaffected sibling is 8 years old

The patient's history was essentially noncontributory Growth and development were within normal limits She had rather severe myopia which had begun to develop when she was 9 years old The family history revealed that this patient represents the fourth consecutive generation in which at least one member of the family was afflicted with this disorder (fig 1) The mother had bilateral edema of the feet and ankles at birth that spread to involve the knees and lasted until she was approximately 23 years of age, at which time the edema gradually receded The maternal grandfather had pronounced lymphedema of one entire lower extremity all his life and died of cancer all over him The maternal granduncle and great grandmother were also said to have had swelling of both lower extremities all of their lives There is one normal female sibling aged 8 years There are no other familial or hereditary disorders

Physical examination revealed that the patient's rectal temperature was 99 F (37 2 C) her pulse rate 78 per minute her

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From the Department of Pediatrics University of Texas—Medical Branch respiration rate 20 per minute, and her blood pressure 110/60 mm. Hg. Her height was 5 ft. ([152 cm.] 75th percentile for 11 years), and her weight was 105 lb. ([47.6 kg.] 90th percentile for 11 years). There was a moderate amount of seborrheic dermatitis of the scalp and face. The breasts showed pubertal changes. There were no cardiac abnormalities. There was brawny, slowly pitting edema of feet, ankles, and legs bilaterally (fig. 2*A*). There was increased warmth, tenderness, and blotchy erythema of the left leg and foot and slight distention of the long saphenous veins bilaterally. The patient complained only of tenderness over the erythematous area.

The results of laboratory examination were as follows: The hemoglobin level was 14.2 gm. per 100 ml., and there were 5,100 white blood cells per cubic millimeter, with 44% neutrophils, 50% lymphocytes, 2% monocytes, and 4% eosinophils. The erythrocyte sedimentation rate was 36 mm. per hour, and the hematocrit was 43%. A catheterized urine specimen revealed no abnormalities. The total serum protein level was 8.4 gm. per 100 ml., with 5.4 gm. of albumin and 3 gm. of globulin. Partitioning of the serum proteins as determined by paper electrophoresis was as follows: albumin 37.3%, alpha$_1$ 5.2%, alpha$_2$ 10.4%, beta 20.7%, and gamma globulin 26.4%. The level in the serum of calcium was 4.3 mEq. per liter, of phosphorus, 2.9 mEq. per liter, and of alkaline phosphatase, 4 Bodansky units. A serologic test for syphilis was negative. Routine serum agglutinations were negative, as was the heterophil agglutination. The lupus erythematosus phenomenon was not present. Bleeding and clotting times were normal. Nasopharyngeal and blood cultures were negative. An electrocardiogram was interpreted as a normal tracing. Roentgenograms of the chest revealed the heart and lung fields to be within normal limits. Bone survey, including skull films and films of the thoracic and lumbar spine, revealed no bony abnormality. Perthes' and Trendelenburg's tests for venous function were negative, although there was minimal superficial distention of the lower portion of the long saphenous vein bilaterally. Skin test with old tuberculin in dilution of 1:100 was 1+. Skin tests with blastomycin, coccidioidin, histoplasmin, and diagnostic diphtheria (Schick test) toxin were all negative. Examination of the feces for ova, parasites, and blood was negative. The erythema and tenderness of left leg subsided spontaneously during the first 24 hours of the hospital stay, and the patient remained afebrile and asymptomatic during the remainder of the stay.

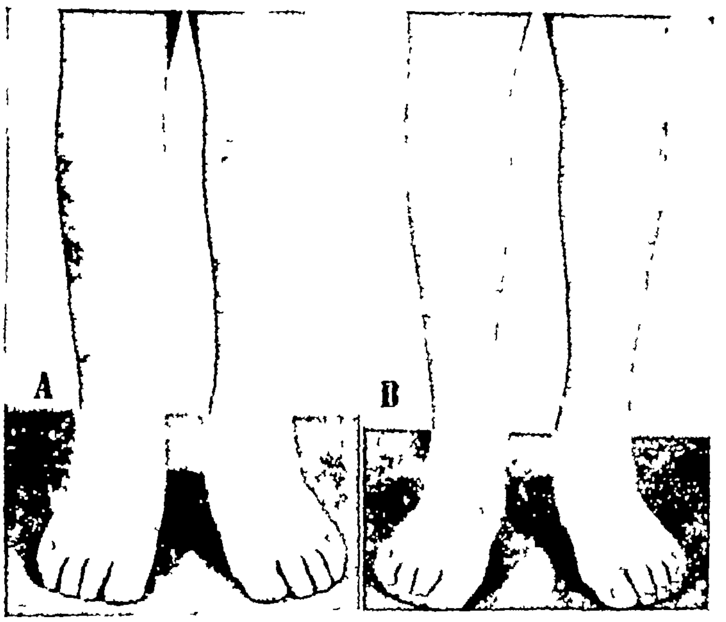

Fig. 2.—Photographs of legs prior to (*A*) and 10 months after (*B*) therapy with prednisone. Note that edema has essentially completely disappeared from the right lower extremity and that only a small amount persists in the left ankle.

The use of a glucocorticoid such as prednisone in this disorder was considered reasonable in view of its lympholytic effect and its efficacy in a number of so-called collagen diseases, of which the recurrent febrile episodes of this disorder are somewhat suggestive. Accordingly, the patient was discharged on the following regimen: prednisone, 30 mg. daily for one week, 25 mg. daily for one week, 20 mg. daily for four days, 15 mg. daily for four days, and then a maintenance dose of 10 mg. daily, in four doses. Oxytetracycline was prescribed in prophylactic dosage. Other measures were continued as before, namely, the wearing of elastic stockings during the day and elevation of the feet three times daily for 30 minutes.

Within a few days of the onset of therapy, the mother reported that the swelling of the feet and legs was less than at any time previous. Three weeks later she enthusiastically reported further decrease until it was, as she states, "almost gone," and the girl was able to wear ordinary shoes for the first time in her life. Menarche occured in July, 1955, and menses continued more or less regularly thereafter. It was noted that there was premenstrual increase in edema. After three months she was reexamined, and the spectacular reduction in edema was observed. She was elated over her improvement. The dosage of prednisone was reduced to 7.5 mg. daily for 10 days, and then to 5 mg. daily. This dose was maintained until the last examination in March, 1956 (fig. 2*B*), at which time maximum circumference at right midcalf and around both ankles was 1 cm. greater after prolonged maintenance on 5 mg. daily than noted on examination six months previously while she was receiving a maintenance dose of 10 mg. daily; however, the patient was menstruating at the time of these measurements. In addition, the mother stated that at times the edema was completely gone in the morning and would tend to reappear during the day, particularly in the right foot. There has been no recurrence of the acute attacks that were rather frequent prior to therapy.

Comment

It seems apparent that the dramatic response herein reported is directly due to the action of prednisone, although measures have not yet been taken to demonstrate this by withdrawal and reexhibition of the drug. Coincident spontaneous improvement is exceedingly unlikely in view of the natural history of this disorder in pubertal patients and the fact that the edema had been steadily progressing in the months prior to admission. During the preparation of this report, review of the literature revealed that a similar case has recently been treated briefly (one month) with cortisone; the edema receded remarkably only to reappear promptly after discontinuation of therapy.[6] The similarity of response to therapy with that which occurred in the subject of this report is further suggestion of the direct effectiveness of glucocorticoid substance. Also notable is the complete subsidence of the acute inflammatory episodes during treatment, in contrast to the pretherapy frequency of attacks.

The successful maintenance of an essentially complete remission lasting 14 months with small amounts of prednisone lends feasibility to the suggestion that idiopathic hereditary lymphedema be added to the list of disorders for which steroid therapy may be recommended for trial. Certainly its use should be evaluated before extensive surgical procedures are undertaken. Prolonged maintenance is practicable, and the side-effects and complications are known to be strikingly reduced by the use of minimal doses. Because prednisone and prednisolone cause virtually no retention of sodium, these preparations would seem to have an added advantage over other glucocorticoids.

Summary

A case of idiopathic hereditary lymphedema (Milroy s disease) occurred in an 11-year-old female, who represents the fourth consecutive generation to be afflicted with this bizarre disorder Both lower extremities were involved to the knee, and the clinical course was punctuated with recurrent, self-limited attacks of fever, local pain, redness, and swelling Prednisone was administered with dramatically beneficial results The edema receded by approximately 80%, and the 'attacks" failed to recur After one month of fairly intensive therapy, a maintenance dosage of 5 mg daily was gradually established, and the remission has persisted under this regimen for approximately 14 months It is recommended that steroid therapy, especially with prednisone or prednisolone, be given extensive trial in other patients with this disease

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FATAL BONE MARROW DEPRESSION AFTER TREATMENT WITH ACETAZOLAMIDE (DIAMOX)

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Acetazolamide (Diamox), 2-acetylamino-1, 3, 4-thiadiazole-5 sulfonamide, a carbonic anhydrase inhibitor, is being used in increasing amounts as an effective, orally given diuretic in the treatment of congestive heart failure[1] Individual sensitivity to the various sulfonamides is not an unusual occurrence Recently, a case of agranulocytosis after acetazolamide therapy was reported[2] To this case is added one of severe bone marrow depression with agranulocytosis, thrombocytopenia, and anemia, which resulted in death after one month of therapy with acetazolamide in a daily dose of 250 mg

Report of a Case

A 73-year-old man was admitted to the hospital on Feb 26, 1955, because of increasing pallor, weakness, and dyspnea on minor exertion of 10 days duration A purpuric rash had been present over the lower extremities since Feb 20, 1955 Minor oozing of blood from nose, rectum, and gums had been noticed during the preceding five days The patient had enjoyed excellent health until about one year before admission, at which time he developed moderately severe edema of the lower legs and feet The edema was due to his spending long hours on his feet in the practice of his profession and long hours at night at the bedside of an ailing family member Congestive heart failure was not present The edema had been controlled by decreased sodium intake until Jan 20, 1955 At this time he appeared in the office of his physician armed with a copy of a lay periodical in which acetazolamide had been discussed He felt that this new drug would serve as a satisfactory substitute for dietary salt restriction which was considered something of an inconvenience On Jan 20, 1955, he was started on course of treatment with 250 mg of acetazolamide daily a regimen that was continued until Feb 20, 1955, with excellent control of the edema

Examination showed a well developed, well-nourished man who appeared younger than his stated age of 73 years The temperature was normal There was a marked purpuric rash over the lower extremities, with confluent areas of purpura and ecchymoses over all pressure points He was mentally alert, intelligent, and cooperative The mucous membranes were pale Oozing of blood was present around the teeth The buccal mucosa palate, and pharynx exhibited many ecchymotic areas Minor bleeding from the nose was present. Petechiae were present in the conjuctival sacs The examination of the ocular fundi showed normal disks The arterioles of the retinas showed grade 2 arteriosclerotic change A few pinpoint hemorrhages were present in the retinas

The patient was comfortable in the recumbent position The neck veins were not engorged The blood pressure was 160 mm Hg systolic and 100 diastolic the pulse rate was 80 per minute Examination of the chest showed no abnormality There was good descent of the lung bases and rales were not present The heart did not appear to be enlarged The left border of cardiac dulness was 8 cm to the left of the midsternal line in the fifth intercostal space No murmurs were present A normal sinus rhythm was present There was no lymphadenopathy The liver and spleen were not palpable There were no demonstrable abdominal masses The genitalia were normal Large external hemorrhoids were present that bled on touch. The prostate was enlarged to about two times the average normal size It was smooth in outline and normal in consistency Good femoral and dorsalis pedis pulses were present bilaterally The neurological and skeletal systems were normal

Laboratory studies showed a red blood cell count of 2,800,000 per cubic millimeter The hemoglobin level was 7 7 gm per 100 cc of blood, and the white blood cell count was 2,900 cubic millimeter The differential count showed 10 segmented polymorphonuclear cells 6 staff cells 80 lymphocytes, and 4 eosinophils No immature forms were present Platelets were not observed on the smear of peripheral blood. The platelet count was 18,000 per cubic millimeter The coagulation time was 2 minutes and 10 seconds and the bleeding time 45 seconds (Lee-White method) There was an absence of clot retraction in 24 hours The nonprotein nitrogen level was 34 mg and the fasting sugar level 145 mg per 100 cc. of blood. The prothrombin time

Blood Studies During Course of Illness of Patient with Fatal Bone Marrow Depression After Treatment with Acetazolamide (Diamox)

	Date 1956								
No /Cu Mm	2/26	3/2	3/3	3/5	3/6	3/7	3/8	3/9	3/11
Red blood cells millions	2.80	1.85	2.37	2 00	1 60	1 90	2 00	2.10	2.20
Hemoglobin gm /100 cc.	51	34	46	43	34	40	40	40	
White blood cells thousands	2.9	1 4	1.2	1	.5	.65	.9	.85	.225
Polymorphonuclear cells	10	2	3	10	4	6	4	6	
Staff cells	6	2	3	0	0	0	0	12	
Lymphocytes	80	96	92	90	96	92	96	82	
Monocytes	0	0	0	0	0	2	0	0	
Eosinophils	4	0	2	0	0	0	0	0	
Basophils	0	0	0	0	0	0	0	0	
Platelets thousands	18			27	16	15	16	15	

was 17 2 seconds (control 15 seconds) The urine had a specific gravity of 1 007 Proteinuria and glycosurea were not present The microscopic sediment showed 50 to 100 red blood cells and 5 to 10 white blood cells per high-power field

Examination of bone marrow aspirated from the sternum showed remarkable hypocellularity, with diminution of all elements Much of the marrow was replaced by fat The cells present were normal No megakarocytes were demonstrated, and no platelets were seen Rare young and adult forms in the myeloid and erythroid series were present No blast forms were observed The patient was treated with daily transfusions of fresh whole blood To combat infection, he was given oral and parenteral doses of penicillin Hydrocortisone (Hydrocortone) was prescribed in a dosage of 120 mg daily throughout his illness

On the sixth hospital day it was necessary to insert an indwelling catheter because of urinary retention After he had a shaking chill and a sustained temperature of 102 and 103 F (38 9 and 39 5 C), he developed acute congestive heart failure, with tachycardia, dyspnea, orthopnea, and basal rales The heart failure was controlled by digitalis Severe oral sepsis developed, and the patient's clinical course deteriorated progressively Oozing of blood from all orifices continued, and the patient died on the 19th hospital day There was a progressive decrease in the white blood cell count to 225 per cubic millimeter on the day of death The blood studies are shown in the table

Autopsy showed a marked generalized petechial rash over the entire body, with areas of confluent ecchymosis more severe over the lower extremities Numerous petechiae were present in the liver, spleen, lungs, gastrointestinal tract, adrenals, and kidneys A staghorn calculus was present in the right kidney The spleen was normal in architecture, and lymph nodes present were normal There was no evidence of leukemia The bone marrow showed marked hypocellularity, with an increase in fat Very few cells were present, but those present were not abnormal

Summary

A case of marked bone marrow depression occurred after treatment with acetazolamide (Diamox) Death was due to agranulocytosis and thrombocytopenia, with marked hemorrhagic diathesis This case shows that an individual idiosyncratic reaction to any chemical can occur in a given patient and that this compound chemically related to the sulfonamides is capable of producing bone marrow changes, with fatal agranulocytosis and thrombocytopenia

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Pulsus Alternans—In pulsus alternans the heart pumps larger and smaller quantities of blood in successive contractions of equal cycle length producing alternately strong and weak beats Equality of cycle length between successive strong and weak beats has been stressed as a cardinal feature in the diagnosis, differentiating it from pseudo-alternans While approximate identity of cycle length is the rule, successive intervals are seldom absolutely equal Wenckebach had observed that the weak beat of the couple can be regularly somewhat premature Slight prematurity of the weak beat may be identified in many published records of ventricular alternans The same phenomenon was noted in the records in six of eight patients with prolonged pulsus alternans studied at the hospital All eight patients had organic heart disease, the etiology being hypertensive in three, arteriosclerotic coronary disease in three, rheumatic in one, and unknown in one —B Friedman, M D , Alternation of Cycle Length in Pulsus Alternans, *American Heart Journal*, May, 1956

COUNCIL ON FOODS AND NUTRITION

Report to the Council

At the request of the Council, the following comments on a topic of current interest have been prepared

Eugene H Stevenson, M S
Acting Secretary

EFFECT OF FERTILIZERS ON THE NUTRITIONAL VALUE OF FOODS

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An article published in The Journal [1] in 1950 stated that malnutrition exists among many peoples of the world because the productivity of the land available is not sufficient to provide an adequate food supply, thus, the improvement of soil fertility is an important step toward the betterment of the health of these peoples From a review of the experimental evidence, however, it was concluded that the principal effect of soil improvement, in terms of human health, was to increase the yield of a given food crop rather than to enhance its nutritional quality Genetic and climatic factors, rather than soil factors, were found to be the important ones governing variations in the nutrient content of a specific harvested crop

Although many additional papers on this subject have appeared during the past six years, none of them contains data that call into question the general conclusion previously reached There have been several additional reports of malnutrition occurring in herbivorous animals fed on crops grown in limited areas where the soil and thus the crops are deficient in copper, cobalt, or other trace elements In these situations beneficial effects have resulted from adding the deficient element to either the soil or the ration Popular writers continue to cite these findings as evidence that human health is similarly affected There is no justification for such a conclusion, at least here in the United States, because our food supply comes from many areas across the country instead of from a limited specific area where malnutrition occurs in animals Endemic goiter is the only established example of a direct relationship between a soil deficiency and a human disease Of course, the answer to this problem is not soil fertilization but the use of iodized salt

Some interesting reports of positive effects from fertilization with phosphorus and nitrogen have appeared In studies by Larson and associates [2] with oats and alfalfa and by Matrone and co-workers [3] with soybean forage, the phosphorus content of these crops was increased by the fertilization with phosphate of soils

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deficient in this mineral in terms of productive capacity This is an important finding because farm animals, unlike man, are deficient in phosphorus in many situations Sauberlich and associates[4] have shown that heavy fertilization of the soil with nitrogen can increase the protein content of corn This finding may be of practical importance for people living on a diet composed largely of this cereal, even though it was also found that the high-protein corn had a lower biological value One should not generalize from these positive results obtained from fertilization with phosphorus and nitrogen, because there are other reports of studies in which no benefits, except in yield, were observed

Detailed mention should be made of a comprehensive, 10-year experiment recently reported by the Michigan Experiment Station[5] In this study a farm, badly neglected for 100 years and in a low state of fertility, was divided into fields, some of which were fertilized with major and minor elements, while others remained untreated Feeds were grown, analyzed for various nutrients, and fed to dairy cows in successive years The nutritive value of the milk produced was studied Although the fertilization resulted in large increases in yields, composition of the crop was little affected The animals were placed on the experiment as breeding heifers, and their calves were added to the appropriate group At the close of the experiment there were data from 35 cows and 81 lactations available for analysis The records of the animals fed rations from the fertilized fields showed no superiority in yield, breeding efficiency, or health No differences were noted in the milks of the two groups in protein, fat, amino acid, mineral, or B-vitamin composition Milk from the cows fed fertilized crops showed a higher vitamin A value, which probably can be explained on the basis of the effect of fertilization on the leafiness of the hay No differences in nutritive efficiency were found in a biological test with rats This extensive experiment bears out the general conclusion previously made that fertilization primarily affects yield rather than nutritional quality

In all of the studies reviewed in the 1950 article,[1] as well as in this one, commercial fertilizers containing inorganic sources of the elements in question were used almost exclusively A long-standing popular belief, increasingly promoted today by some enthusiasts, is that organic sources of fertilizing elements, such as barnyard manure and compost, greatly improve nutritional quality, in contrast to the ineffectiveness of the inorganic sources commonly used In fact, it is frequently claimed that the widespread use of the mineral fertilizers has been responsible for a decline in the nutritional quality of our food supply and that this decline is continuing today These claims need examination, as they are not based on acceptable scientific evidence Field observations are reported, with both crops and animals, that show expected improvement in crop yields and in animal performance An unusually high nutritive value of this feed is claimed, but there are no comparable data from a controlled experiment concerning results obtainable with mineral fertilizers Thus, the reports fail to demonstrate that the use of organic fertilizers results in a food crop with nutritive values not otherwise obtainable

Fortunately, some controlled experiments have been carried out by scientists interested in getting the true facts, notably in the U S Plant, Soil, and Nutrition Laboratory at Ithaca, N Y A summary of the results obtained in field tests by this laboratory follows[6] The vitamin C and carotene content of seedling rye on plots receiving large quantities of manure over a period of 25 years was the same as that of the rye from plots fertilized with chemical fertilizer for the same period Similarly the vitamin C, iron, and copper content was the same in potatoes grown on the manured soil and those grown on soil treated with chemicals

In other experiments, no increase in the vitamin C content of snap beans or the carotene content of carrots resulted from the use of compost as compared with the use of chemical fertilizers Details of these studies are presented in a paper by Brandt and Beeson[7] Arnon and associates[8] fed guinea pigs on grass produced from a soil fertilized with manure and alfalfa meal or grass produced from a water culture containing inorganic sources of nutrients Animal growth and development were equal in both cases These limited experiments do not prove that organic fertilization has no advantage in terms of superior nutritive value under any conditions, but they do provide much convincing evidence from controlled studies, in contrast to the uncontrolled, contrary observations cited by the "organic gardener"

A careful examination of the papers reviewed earlier, as well as the experiments cited in the present article, fails to provide any evidence for the claim that the use of commercial fertilizers results in a lowering of the nutritive value of our food supply In fact, these papers provide evidence to the contrary Crops grown on mineral-fertilized soils for 25 years were equal, in the nutrients studied, to the crops fertilized with manure or compost over the same period Claims that chemical fertilizers are devitalizing our soil and thus producing a food supply of low nutritive value are entirely unfounded

On the other hand, the organic matter content of the soil is important, as a contributor to its fertility and as an aid in maintaining the proper physical conditions It is also the form in which nitrogen can be stored and gradually released through the agency of micro organisms for uptake by the plants It furnishes, in small quantities, practically all of the different nutrients required for plant growth Barnyard manure, compost, and crop residues are used by farmers to maintain and improve soil fertility to the extent to which they are available Large amounts of chemical fertilizers are also needed on many soils to produce high yields Thus, both organic and inorganic fertilizers are required to provide the quantity of food needed by our population [9] Neither has been demonstrated to have an important effect in improving the nutritive value of a given food crop for man

Whereas the results to date may not appear promising in terms of their application to human nutrition, this general problem of the effect of soil fertility on the nutritive value of specific foods remains one of large importance It should be studied further, particularly in carefully controlled long-term experiments

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COMMITTEE ON COSMETICS

Report of the Committee

This is the first in a series of two reports on the effects of the sun on the skin This article is intended to provide the physician with some explanation regarding the effects of sunlight on the normal skin and to inform him how his patients can protect themselves from its harmful effects

VERONICA LUCEY CONLEY, *Secretary*

WAYS AND MEANS TO SAFE SUNBATHING

The response of the normal skin to a single exposure to the sunlight and the consequences to the normal skin of continued excessive exposures over a period of years are well recognized It is on the basis of these observations that advice has been formulated to guide the major portion of the American population whose exposures to the sun range between these two extremes

Chronic Exposure to the Sun

The threat of malignancy is not a concern of the occasional sunbather, but the evidence is clear that chronic exposure to sunlight can be one of the major factors in the production of precancerous and cancerous conditions of the skin This is as pertinent to the health of the ardent outdoor sportsman and sun enthusiast as it is to the farmer, the sailor, the sheepherder, or the cowboy, who follow vocations in which chronic solar exposure has long been recognized as an occupational hazard [1] All individuals engaged in year-round outdoor pastimes as well as occupations should be urged to adopt protective measures Most warnings should be directed toward the sandy-haired, light-complexioned, blue-eyed person, for the dark-haired, brown-eyed, olive-skinned person and the Negro have much better protection against the damaging rays However, even members of the latter groups are not immune to the effects of the sun's rays, and they will suffer acute or chronic damage if exposure is sufficiently potent, repeated, or prolonged Complete immunity to the sun can never be assumed Precautionary measures are somewhat simplified by the increasing evidence that the wave lengths from the same spectral region that produces the sunburn complex are the principle cause of cancer of the skin in man [2] Obviously, whenever damage to the skin from the sun is suspected or feared, clothing should be worn to cover as much of the skin area as possible and preparations that completely screen out the sunburn rays should be used as supplementary measures to cover the face, neck, and hands Emollient preparations massaged into the exposed skin regularly will help minimize skin dryness In conjunction with these daily precautions, periodic examinations are urged so that all suspicious skin changes can be observed and properly treated

Acute Exposure to the Sun

The degree of sunburn that develops in response to a given dose of ultraviolet radiation is a function of a number of environmental and individual variables Furthermore, the range of safe dosages varies considerably between individuals and from time to time and from skin site to skin site in the same individual The properties of the stratum corneum are thought to be a major factor in determining degrees of sensitivity Nevertheless, for practical purposes the erythemal threshold has been established as an index to designate the amount of ultraviolet radiation that will cause just perceptible skin reddening Because of wide individual variations, this is at best an arbitrary index [3] It does however provide a guide of sorts for the average sunbather

Radiation that produces sunburn constitutes less than 0 2% of total sunlight and is its most variable part Seasonal changes are important In the North Temperate Zone, the maximum insolation occurs on June 21, it is quite possible that a more severe sunburn may be received at the beginning of May than at the end of August The time of day is another important variant in the erythema-producing rays Even on a bright midsummer day no sunburn is likely to occur from exposure before 8 a m and after 4 p m, in contrast to midday, when the maximum degree of sunburn can be expected

Conditions of the atmosphere contribute to the effects of the sun on the skin Sky radiation, which is sunlight that has been scattered by the gas molecules of the atmosphere, will produce burning without exposure to direct sunlight On lightly overcast days, particularly in a fog the burning rays are scattered and can produce severe sunburns By contrast, dirt particles and smoke that contaminate the air may provide considerable protection against sunburn by absorbing sunburn-producing rays[2]

Mechanisms of Skin Tanning

Three distinctly different physiological processes can result in tanning (1) the production of new melanin granules in the melanocytes in the basal layer, (2) the outward migration of pigmented cells and melanin granules, and (3) the oxidative darkening of preformed melanin

The first two processes constitute "true" tanning, which is caused by the rays of the sun in the burning range Since sunburn is a prerequisite, a preparation that prevents all burning rays from reaching the skin will prevent "true" tanning After adequate exposure to the sun, pigment migration does not begin for at least 24 hours, and new pigment formation requires a few days Therefore, the skin will not be obviously darkened until several days after exposure Although a tan may persist for months or years, the thickening of the corneum, which makes the skin relatively immune to future sunburn, disappears approximately 2 months after the last exposure to the sun

Tanning by oxidation of existing pale melanin that has persisted from a previous tan is simpler and more rapid than "true" tanning, however, the individual tanned by this mechanism is deprived of a major source of resistance to future sunburn The stratum corneum does not thicken Tanning by this process is not dependent upon sunburning but is caused by ultraviolet rays beyond the burning range For this reason, it may occur at those times when sunburning is not expected, such as in early morning and late afternoon, in very early spring, and in late fall In contrast to primary melanization, tanning by oxidation may take place in a matter of minutes after exposure to sunlight and through most window glass Suntan preparations formulated to screen out all burning rays permit only this type of tanning, provided that the longer waves are not also absorbed by the sunscreen This is the only type of tan that can occur in a day or a week-end This obviously requires a special set of circumstances and rules out the possibility of a one-day tan for a major portion of the population

Healthfulness of a Tan

Basking in the sun is healthful if by this is meant that the warmth of the atmosphere encourages relaxation and a sense of well-being The only objectively demonstrable beneficial effect produced by sunlight on the normal human skin is the formation of vitamin D and the resultant antirachitic effect.[4] This action is stimulated by the same ultraviolet rays that cause sunburn Therefore, the prevention of these rays from reaching the skin, whether as the result of the presence of numerous dust particles in the air or the use of sunburn preventives, will eliminate the only scientifically established beneficial action of the sun on the skin This is not particularly significant in this country, since the American diet provides an adequate vitamin D intake

Cosmetic Aspects of Sun Exposure

The merits of a suntan in improving attractiveness is a matter of individual taste and local mores The rancher's wife may regard a darkened skin as undesirable at any time of year, whereas the city dweller in the North may place great pride in a skin darkened several shades in the winter Since the improvement in skin appearance is a major objective in most sunbathing a general warning is in order The exact point at which the cumulative effects of the sun manifest themselves in irreversible skin changes is unknown and individually very different

There is indisputable evidence that continued exposure to the sun weathers and ages the skin The clinical picture resulting from chronic excessive sun exposure has been frequently described in medical literature[5] Gradual and inevitable changes take place in the superficial blood vessels of the exposed surfaces The connective tissue of the skin undergoes degenerative changes that are reflected on the surface by wrinkles and a coarsening in skin texture The V of the neck becomes reddened, and spotted hyperpigmentation is noted over the exposed areas This is somewhat reminiscent of freckling, but the dark spots are more irregular in shape and size than freckles The lips sometimes become scaly, fissured, thickened, and eroded Abnormalities of keratinization of different types and degrees develop Some of these changes are premalignant (keratoses), the end-results of which can be skin cancer

Farfetched and unusual as these symptoms may seem to the average sunbather, there is undeniable evidence that the effects of the sun are cumulative and at some point irreversible Complete immunity to the effects of the sun is nonexistent. Two or three months of sunbathing for several years may result in a complexion that remains notably darker than its original color, this incompletely faded tan may persist for years even though only a temporary tan is desired Severe sunburns may result in a mottling in skin color that is cosmetically undesirable and may persist for some time With the increasing trend towards outdoor activities, it is important to recognize not only the immediate effects of overexposure but also the long-range effects

Since the hair is an appendage of the skin, it is appropriate to include a caution on the cosmetic effects of overexposure of the hair to the sun In the period of exposure required to produce a significant suntan, hair exposed to the sun may assume many of the same characteristics as chemically bleached hair, except possibly that the hair is unevenly lightened in color In time, sun-bleached hair becomes brittle and unmanageable, and neither oil treatments nor other claimed cures can restore the hair to its normal state Hair waving, either of a temporary nature as in setting or in permanent waving, may produce inferior results on sun-damaged hair There is no evidence at present that future hair growth or characteristics are altered by such overexposure

Ways and Means of Acquiring a Tan

Gradual exposure to the sun is the safest and simplest method of acquiring an attractive tan This method allows the skin to build up a natural resistance to the sun by increased pigmentation and progressive thickening of the stratum corneum [6] At the same time, it minimizes the immediate possibility of a severe sunburn with its accompanying discomfort, disfigurement, and possible systemic manifestations It allows sufficient skin burning for a tan to develop evenly without the threat of excessive peeling No suntan preparation should be used in this method of tanning by gradual exposure As a general measure, the first period of exposure should be approximately 15 minutes around midday This may be extended by a few minutes each day An increment of 20 to 30% of the exposure time the day before is safe if there is no sudden change in intensity of sunshine The clock is the only dependable guide to safe dosage The color of the skin during sunbathing is not reliable, because except in very severe burns reddening does not occur until more than an hour after actual burning Furthermore, although it is natural to gauge the burning potential of the sun by the brightness of the day, the naked eye can not measure the intensity of the burning rays with any degree of accuracy [7] For those who tan with difficulty, this method of gradual exposure without a suntan preparation will theoretically produce the best results The individual with an untanned skin who seeks to develop a tan by the application of a suntan preparation will neither burn nor develop a "true" tan, provided this preparation effectively screens out all burning rays and is used properly Occasionally substances that color the skin are included in a formula with the implication that they are an aid to tanning when actually they stain the skin

Suntan Preparations

The main advantage of suntan preparations is that they permit an individual to remain in the sun for a longer time without severe burning than if the skin were unprotected An additional important function is the protection of patients who may suffer adverse effects from exposure to the sunburn rays (those with solar herpes, lupus erythematosus, polymorphous light eruptions, keratoses, skin cancer, and patients previously treated with x-ray) Suntan preparations contain chemicals called sunscreens, which absorb the burning rays of the sun in varying degrees The first commercial sunscreen appeared in 1928 and was a combination of benzyl salicylate and benzyl cinnamate [8]

If a suntan preparation is claimed to be a preventive or treatment, it is regarded as a drug and must be labeled with the active ingredient, in this case, the screening agent If the product is represented solely as a means of acquiring a tan, it is regarded as a cosmetic and the label need not include any statement on ingredients

Recently a survey of 10 stores in the Chicago area was conducted by the Chemical Laboratory of the American Medical Association [9] Fifty-six different suntan creams, lotions, and oils were found, of which 30 did not have active ingredients listed Four others listed proprietary names of which only one could be identified by a search of the literature Two suntan oils listed 2-ethylhexanediol-1,3 as the only active ingredient This substance is an insect repellent It has very little to recommend it as a light absorber The sunscreening agents listed on the labels of the remaining preparations were glyceryl *p*-aminobenzoate, isobutyl *p*-aminobenzoate, propylene glycol *p*-aminobenzoate, benzyl salicylate, dipropylene glycol salicylates, glyceryl salicylate, 2-ethylhexyl salicylate, homomenthyl salicylate, menthyl anthranilate, octyl anthranilate, benzyl cinnamate, and menthyl unbelliferone The *p*-aminobenzoates and the salicylates were encountered with much greater frequency than the anthranilates, cinnamates, or unbelliferones Notable among the sunscreens not found listed were digalloyl trioleate, tannic acid and its derivatives, and phenyl salicylate Studies of light absorption indicate that the *p*-aminobenzoates and tannic acid are among the best screening agents presently in use [10]

The Chemical Laboratory of the American Medical Association reports that tests on two popular brands of baby oils, both containing unknown amounts of lanolin, indicated that these oils transmit the erythema-producing wavelengths of light to such an extent that their use as screening agents cannot be recommended Of the 56 samples, none stated the amounts of the active ingredient except the two oils that contained the ethylhexanediol The amount of light absorbed by the screening agents depends primarily on the concentration The *p*-aminobenzoates are effective in concentrations of about 2% With poor screening agents, the use of high concentrations to achieve effectiveness may at the same time diminish the transmittance by scattering the wavelengths needed for the oxidative phase of the tanning process Comparisons of the exact effectiveness of the finished products cannot be made without extensive tests

Selection and Use of a Sunscreen

The selection of one brand of suntan preparation over another is virtually a hit-and-miss procedure When the screening ingredient is listed on the label, it furnishes some point of reference from which to operate, but this is not sufficient for reliable evaluation The cosmetic elegance of the product can perhaps be determined by gross examination, but stability in terms of shelf life and exposure to the sun remain unknown as do other important properties

It is advisable on the basis of limited significant data to assume that all preparations share certain limitations[11] One of the most significant limiting factors and the greatest risk in using sunscreen preparations is the allergic dermatitis that they cause in certain susceptible individuals[12] It can appear either shortly after the first use or only after weeks, months, or years of application It is usually caused by allergy to the active sunscreening agent but may also be caused by other ingredients such as perfumes, lanolin, and various oils

No preparation is guaranteed to be safe for all users nor to protect all persons under all circumstances Generally recognized directions for use will provide the best possible results[13] and should include that the preparation be reapplied at least every two hours and more often if swimming or friction removes the protective film Sufficient material should be used to cover all exposed areas, the nose, shoulder blades, and V of the neck should receive special attention by frequent reapplications Even under the best conditions, a burn may occur if exposure is sufficiently prolonged A suntan preparation that permits users to tan must allow some burning rays to pass to the skin Otherwise, previously unexposed and untanned skin will not be affected

Physical Screens

When it is important to prevent sunburn and tanning as well, adequate clothing provides a most effective physical screen For this same purpose, special devices of cardboard and other opaque materials have been devised to protect the nose or other prominent areas Closely woven brown, orange, or red fabrics offer the best protection, whereas loosely woven clothing may be less effective Various kinds of white shirting become much more permeable to erythema-producing radiation when wet, presumably as a result of diminished scattering by wet fabrics

Under some conditions, life or death may depend on the prevention of overexposure to the sun Much of the research that has produced present products was stimulated during World War II In such instances, cosmetic elegance of the product is of relatively minor importance, this fact allows considerably more freedom in the chemical formulations The essential objective is to prevent the rays in the sunburning range from reaching the skin Dark red veterinary petrolatum was recommended by one group of researchers for this purpose[14] This kind of product might be acceptable as a life-saving measure for pilots marooned on life rafts or in the desert after crashes, however, even if it were a superior sunscreen, its unacceptable cosmetic aspects would preclude its usefulness for the general public Such products are sometimes called "sun shades" or "parasols," since they form an opaque barrier between the sun and the skin Ordinarily the skin will neither burn nor tan when these products are used In this group belong products containing high percentages of magnesium oxide, titanium dioxide, zinc oxide, bentonite, calamine, calcium carbonate, kaolin, and lithopone Cosmetic make-up bases with heavy covering power contain high concentrations of these chemicals and offer considerable protection The disadvantages are that these chemicals impart an unsightly white or pigmented covering to the skin, they may also cause heat stasis and hinder perspiration, with subsequent maceration and prickly heat

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Examination of the Heart —It is a mistake for the physician to use his stethoscope before observing the patient, and palpating the pulse and the praecordium By being suspicious of what may be found on auscultation, one is more likely to find it. As an example the diagnosis of significant mitral stenosis can usually be made by feeling at the apex the sharp valve closure, associated with the short, loud, first heart sound The stethoscope may only confirm this or may reveal complicating valve disorders In beginning the auscultation of a patient it is often wise to start at the base where the second heart sound defines itself best and proceed by short steps toward the apex This method may be obligatory in the presence of tachycardia or when murmurs are atypical Failure to observe this can cause the unwary to mistake diastole for systole It is a far better procedure than attempting to time the sounds by palpation of the apex beat or the carotid pulse After establishing the cardiac sounds and the rhythm a quick survey of other praecordial regions should be made the apex ensiform sternal borders aortic and pulmonary areas and back of the chest. This should be done with both chest-pieces and with the patient sitting and supine The patient should be placed in the left lateral position and the apical region explored Mitral stenosis of lesser degrees can easily be missed unless this is done both before and after exercising the patient —H B Sprague M D The Art of Auscultation of the Heart, *The Practitioner,* March 1956

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TREATMENT OF HODGKIN'S DISEASE

GUEST EDITORIAL

Ovid O Meyer, M D

The physician who devotes an appreciable amount of his time and effort to the treatment of the lymphomas and leukemias is often accosted with the comment from his medical colleagues that such must be "a discouraging business" Actually, in the treatment of such patients one does at times experience a feeling of despair, but not one of complete hopelessness or frustration, because much can be done for these individuals and great gratification can accrue from this, especially since the addition of the newer available therapeutic agents Of particular interest is the patient with Hodgkin's disease (lymphogranulomatosis), for several reasons The disease is protean in its manifestations and often offers a real challenge diagnostically In varying degrees it resembles both tumor and infection in its course, which is frequently bizarre in individual patients Actually, it is conceivable that this may be a tumor with a virus or infectious etiology The prognosis is decidedly variable, with no certain guide as yet available as to the probable duration of the disease in any given patient at the outset Thus, from time to time one has the satisfaction of unusual examples of patients who defy the statistics for example, the patient with extensive proved Hodgkin's disease at the age of 7 (in 1937) who has finished college, is a working newspaperman, was married 24 months ago, and is the father of a child, or the woman, with exacerbations and long remissions of her Hodgkin's disease, who raised five children and died of cerebral hemorrhage 25 years after the original diagnosis Other similar cases of patients with Hodgkin's sarcoma can be cited, as well as those with paragranuloma or granuloma, so that the histopathology, although of prognostic value in the series, is not necessarily decisive in the prognosis for the individual patient

Approximately 100 years ago Samuel Wilks described cases akin to some of those described by Thomas Hodgkin in 1832 Wilks established that there was an entity involving lymph nodes, and he later applied the name Hodgkin's disease Initially there was no specific treatment, but late in the 19th century potassium arsenite solution (Fowler's solution) was recommended in the first edition of Osler's "Practice of Medicine" There was early application of the newly introduced roentgen therapy in 1902-1905 by Pusey, Coley, Williams, Childs, Steiwand, Heineke, and many others Ionizing radiation was essentially all that was available for the specific treatment of Hodgkin's disease until 1942, although Yates and Bunting, in 1915, seeking surgical cure, advised radical excision of involved nodes Among several hundred patients with Hodgkin's disease, I have seen but one, a physician, whose disease was sufficiently localized that I could recommend radical dissection of neck nodes Localized disease warranting surgical excision is more frequent when dealing with lymphosarcoma, and cure therefrom is more likely, particularly if roentgen therapy is directed postoperatively to the involved site It has been demonstrated that radioactive phosphorus has little or no value in the treatment of Hodgkin's disease

The nitrogen mustards, tris (β-chlorethyl) amine hydrochloride and methyl-bis (β-chlorethyl) amine hydrochloride, were first employed in 1942 Use of the bis compound has gradually become standard Its leukotoxic properties are dependent upon the ionization product, the ethylenimonium derivatives Triethylene melamine was found to have nitrogen mustard-like properties in 1949, and shortly thereafter its effectiveness was demonstrated for the treatment of Hodgkin's disease, lymphosarcoma, and leukemia The action of this drug, which is given orally, also depends on its transformation to an ethylenimonium compound, and the effect is similar The phosphoramides have been more recently introduced They possess the same potential toxicity (causing bone marrow depression, leukopenia, thrombocytopenia, and hypoplastic anemia) as do nitrogen mustard and triethylene melamine but have the advantage that they can be given intramuscularly In 1953, Everett, Roberts, and Ross[1] synthesized a series of water-soluble aromatic nitrogen mustards, and Galton and co-workers[2] have employed one of these, chlorambucil [p-(di-2-chloroethyl)aminophenylbutyric acid], or CB 1348, in treatment of a variety of malignant lymphomas, including Hodgkin's disease, with partial to striking remissions in some but not all cases The steroid hormones—corticotropin, cortisone, prednisone, and prednisolone—which are not bone marrow depressants, have also been employed in the treatment of Hodgkin's disease and other lymphomas as well as the leukemias Occasionally remissions have been induced with these hormones, but not so regularly as with the other agents mentioned Their greatest utility, however, is in the patient who develops an acquired hemolytic anemia, for whom these chemicals then become important adjunctive therapeutic agents

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From the Department of Medicine University of Wisconsin Medical School

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Many other agents have been thought to have specific value in the treatment of Hodgkin's disease, and Hoster and co-workers [3] list over 50 chemicals Colchicine has long been used, and there has been recent revival of interest in this chemical as an inhibitor of mitoses The chicken–Hodgkin's tissue antiserum used in England was found to be of little value and occasionally dangerous The antireticulocytotoxic serum of Bogomoletz was also found to be without effectiveness The most recent approach has been the use of antibiotics, notably by the French and Germans, employing actinomycin C,[4] but our experience with actinomycin D [5] has not been satisfactory

Aside from the so called specific agents employed for the treatment of Hodgkin's disease, various other aspects of the therapy should be kept in mind Blood transfusions when indicated may sustain the patient and make him more comfortable Antibiotics may be employed to treat intercurrent infection and analgesics freely utilized to control pain, which is most common when bone involvement exists Simple measures for the improvement of the patient s general health are too often ignored A well-balanced diet of no less than 3,000 calories is clearly indicated, and weight gain, if thus achieved, is of great value in changing the outlook in some of these patients When anemia, ordinarily normochromic or hypochromic, is present, the administration of iron is desirable, liver extract and cyanocobalamin (vitamin B_{12}) are usually not indicated, and their administration is wasteful

Of real importance is the maintenance over the years of the morale of these patients with malignant disease this is an essential part of the physician's job One should never use the term Hodgkin s disease in the patient s presence but should substitute lymphogranulomatosis, for the layman either has read too much about the ravages of this disease in the newspapers or he has had a friend or acquaintance who has died of Hodgkin s disease A sincere, cheerful, optimistic attitude in dealing with these individuals and their families is of inestimable value These patients should be allowed to carry on normal activity if desired, since there is no evidence that reasonable activity is detrimental, and I allow them much freedom Rarely is there an emergency to deal with, and, once the diagnosis is established by biopsy, there is no occasion for excitement and panic that will be quickly transmitted to the patient Calm, judicious planning of the therapy for the treatment of the symptoms, since we do not anticipate cure, is in order, and, at the outset, for most patients, roentgen therapy is the present treatment of choice However, the newer therapeutic agents have been efficacious and worthwhile They have made the treatment of this disease more interesting, requiring greater skill and judgment than when only roentgen therapy was available, they have also permitted a more comfortable, economically sound life and, I believe, an actual prolongation of life in many instances A totally pessimistic outlook is undesirable when dealing with the individual with Hodgkin's disease Life may be long, and in rare instances there may be apparent cure Thus, one can look to the future with anticipation that still more effective therapy will be developed for the treatment of Hodgkin's disease, and one can derive some small satisfaction from the fact that the plight of, if not the prognosis for, such patients has already been ameliorated

CONTACT LENSES

During the last few years considerable progress in manufacturing and fitting contact lenses has taken place in the United States Contact lenses are not only used now for conditions that eyeglass lenses will not correct but also worn by many persons for cosmetic reasons, as well as for safety in certain sports and occupations Nevertheless, despite commercial advertising contact lenses do not take the place of eyeglasses in most cases in which ordinary eyeglasses give serviceable vision In these cases contact lenses may be a useful adjunct to eyeglasses, but they do not enable most persons to discard their glasses completely Fluidless corneal, or contact, lenses are indicated for patients with healed inflammatory disease of the cornea and corneal scars or deformities, such as keratoconus, where adequate vision cannot be obtained with eyeglasses Corneal, or contact, lenses have proved satisfactory for patients who have had a unilateral cataract extraction Patients with high refractive errors, i e , with myopia to a high degree, astigmatism, or farsightedness, who object to wearing thick lenses to correct the high refractive error, may wear corneal, or contact, lenses

Corneal sensitivity appears to be the greatest factor in determining tolerance to corneal lenses, and aphakia after surgery will usually result in diminished corneal sensitivity, which contributes to greater ease in accepting contact lenses Contraindications to the corneal lens include merging corneoscleral curvature, which causes the lens to become easily displaced by the movement of the eyelids, lack of support from the eyelids when they cover no part of the cornea, active corneal disease, and psychological unfitness of patients

An ophthalmologist should be consulted if the patient contemplates wearing contact lenses, to determine the suitability of the eye as well as the patient for wearing these lenses Persons whose surface blood vessels dilate under all minor irritations, including the presence of dust, wind, sun and smoke, swimming, and the use of alcoholic beverages usually do not tolerate contact lenses well If a patient is allergic to plastic lenses constructed from glass may be fitted The prescribed contact lens should be checked by the ophthalmologist for fit and visual performance The eye is examined periodically for signs of reactivation of healed or inactive pathological conditions of the cornea, as well as for corneal abrasion or irritation that may be caused by wearing the lens Wearing time must be increased slowly and gradually to increase the tolerance to the lenses Corneal lenses, if prescribed by the ophthalmologist and tolerated by the patient, can be recommended

MEDICINE AND THE LAW

THE PRESUMPTION OF LEGITIMACY AND LACHES IN RELATION TO THE DENIAL OF PATERNITY

A number of states have enacted statutes prescribing the time within which a bastardy proceeding may be instituted—that is, the time within which the mother may commence a proceeding seeking to charge the putative father with the support of an illegitimate child Even in the absence of such a statute, the weight of authority holds that bastardy proceedings are within general statutes of limitation In other words, a mother must make a charge against the putative father within a specified period of time if she wants him to be declared the father of the child in question and held responsible for the financial support of the child These are actions that are positive in nature What happens in the situation, however, where a woman attempts to obtain a legal separation and the husband finds, shortly before the suit is filed, that he is not the father of a child whom he has been supporting and claiming as his own for five years? Is it then too late for him to deny the paternity of the child? Is it ever possible for a husband to deny the fatherhood of a child born to his wife during the existance of the marriage relation? A recent decision of the Supreme Court, Appellate Division, of New York, raised and answered some interesting questions along these lines [1]

In this case the parties were married in 1946 They had three daughters, one 6½ years of age, and twins 5 years of age On Dec 23, 1954, the defendant husband abandoned the plaintiff, and in 1956 the plaintiff sued for separation based upon abandonment, nonsupport, and cruel and inhuman treatment In a counterclaim filed by the husband, it was alleged that on Dec 22, 1954, he discovered for the first time that his wife had been living in adulterous intercourse with a named correspondent since October, 1948, and that the twins were born in October, 1949 He immediately abandoned the plaintiff and did not cohabit with her since that time He denied the paternity of the twins

Section 306-a of the Civil Practice Act provides

> Wherever it shall be relevant to the prosecution or defense of an action the court, by order, shall direct any party to the action and the child of any such party and the person involved in the controversy to submit to one or more blood-grouping tests Whenever such test is ordered and made, the results thereof shall be receivable in evidence only where definite exclusion is established

After issue was joined, and pursuant to this statute, the defendant husband moved for an order directing a blood-grouping test of himself, the plaintiff, the twins, and the correspondent, for the purpose of excluding his paternity This appeal followed the denial of his motion

A number of issues were presented, but, for the purpose of this discussion, the three principal questions considered by the appellate division were (1) whether the blood tests are relevant to the prosecution or defense of the action, (2) whether the fact that the parties had been living together continuously since the birth of the twins, and for a period of five years thereafter, precludes defendant from asserting the claim of illegitimacy because of laches, and (3) whether the fact that defendant and plaintiff lived together during the period of gestation creates a conclusive presumption of legitimacy

The plaintiff alleged that the twins were issue of the marriage and asked provision for their support as part of the judgment The defendant denied the paternity of the twins Regardless of who prevails, a provision for the support of the twins will be an integral part of the judgment Inasmuch as defendant's obligation to support the twins depends upon his paternity, the court held that the blood-grouping test cannot be irrelevant to the prosecution or defense of the action within the meaning of the above law

With respect to the second issue, the court said that there was no validity to the claim of laches The defendant alleged that he learned about his wife's adulterous conduct on Dec 22, 1954, and that he left his home the next day Apparently the court felt that he acted as promptly in the matter as he possibly could

The final issue, and the one to which the court gave the most attention, was whether or not the presumption of legitimacy should be deemed to be conclusive under the circumstances existing in this case It appeared that the plaintiff and defendant had lived together during the entire period of gestation and for five years thereafter Reason and justice, said the court, as well as a recognition of the modern advances in science, compel a determination that the presumption of legitimacy is not conclusive but rebuttable The probative value of the results of skillfully conducted blood-grouping tests has been widely accepted The tests of course, will be relevant only if they show noncompatibility as between the blood of defendant, the plaintiff, and the twins If so, such evidence should be deemed conclusive as to nonpaternity

The artificially erected presumption of legitimacy was once considered as one of the strongest and most persuasive known to the law There was a time when its rank was so high that, "if a husband, not physically incapable, was within the four seas of England during the period of gestation, the court would not listen to evidence casting doubt of his paternity" An English case in 1807, however, said that this rule "has been long exploded on account of its absolute nonsense" Judge Cardozo pointed out that the presumption of legitimacy, like other presumptions, is now subject to rebuttal, that the old formula has yielded with the years to one more natural and supple, that, while there are survivals of the rule of "olden days," the courts have, by and large, generally agreed that contrary evidence may shatter the presumption of legitimacy 'though the possibility of access is not susceptible of exclusion to the point of utter demonstration" Presumptions, quoted the court, are looked upon as bats of the law, flitting in the twilight but disappearing in the sunshine of actual facts It cannot be gainsaid that we have now reached the point where presumptions must yield to modern scientific facts

"While we do not hold," concluded the court, "that blood-grouping tests should be granted on an application of an alleged father, based on mere suspicion, we are of the opinion that the unusual circumstances presented in the case at bar warrant the granting of this application" Accordingly, the appellate division entered an order directing the plaintiff, the defendant, and the twins to submit to blood-grouping tests and that the defendant bear the expense of such tests

This case certainly points out quite clearly and unmistakenly what the law is in New York—a husband may question the paternity of a child even though he has lived with the mother during the entire period of gestation and for five years thereafter Correspondence with the physicians who performed the blood tests in this case reveals that the tests actually did definitely exclude the defendant as a possible father of the twins Science has prevented the continuation of an injustice to a husband by the activities of an unfaithful wife

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1 *Anonymous Respondent* v *Anonymous Appellant and Anonymous Respondent* Decided March 26 1956 150 N Y S (2) 344

INTERNAL REVENUE SERVICE REJECTS KINTNER CASE AS A PRECEDENT

The Internal Revenue Service has ruled that a group of doctors who adopt the form of an 'association" in order to obtain the benefits of corporate status for the purposes of section 401 (a) of the Internal Revenue Code of 1954 (which permits the establishment of tax-deferred pension plans for employees) is in substance a partnership, and the doctor-members are employers and therefore not employees The contrary position expressed in the case of *United States* v *Arthur R Kintner et ux*, 216 Fed (2d) 418, will not be accepted by the Internal Revenue Service as a precedent in the disposition of other cases involving similar fact situations

The ruling was made in connection with a request for advise as to whether an association of doctors that formerly operated as a partnership may be treated as a corporation for federal income tax purposes The further question presented was whether a doctor-member of the former partnership was an employee of the partnership for the purpose of the requirements for establishing a pension plan under section 401 (a) of the Internal Revenue Code of 1954, (corresponding to section 165 (a) of the 1939 Code) This section of the code permits employees tax deferment for amounts contributed to qualifying retirement pension plans

In the Kintner case, the circuit court of appeals for the ninth circuit held that the Western Montana Clinic met more of the criteria of a corporation than of a partnership Having determined that the clinic was an association, which is treated for tax purposes as a corporation, the court further held that the pension plan established by the association satisfied the requirements of section 165 (a) of the 1939 Internal Revenue Code In reaching this conclusion, the court credited the doctor-members with prior years of service as partners as constituting qualifying years of employment for purposes of the pension plan of the association

The more recent ruling of the Internal Revenue Service, which does not accept the court's findings, states in part

> It is held that a group of doctors who adopt the form of an association in order to obtain the benefits of corporate status for purposes of section 401 (a) of the Internal Revenue Code of 1954 is in substance a partnership for all purposes of the Internal Revenue Code It follows that the doctor-members are employers and therefore not employees Furthermore any period of service as members of a prior partnership will not be credited as a period of employment for purposes of the above section The contrary position expressed in the case of *United States* v *Arthur R Kintner* will not be accepted by the Internal Revenue Service as a precedent in the disposition of other cases involving similar fact situations (Rev Rul 56-23)

Progress in Electroconvulsive Therapy —In 1938 Cerletti and Bini introduced electro-convulsive therapy for the treatment of certain psychiatric disturbances Since then it has been demonstrated that ECT is a safe valuable addition to our therapeutic armamentarium Recent modifications have increased its safety, its therapeutic effectiveness and have broadened its scope of application Last year in this country alone an estimated minimum of 150,000 treatments per day were administered in psychiatric institutions in general hospitals and in psychiatrist s offices When ECT was introduced, it was feared that this measure was drastic, likely to produce serious complications and even fatalities Hence the initial list of contra-indications to ECT was quite lengthy It included cardiovascular disease, hypertension, neurological disease tuberculosis musculo skeletal disease pregnancy, advanced age debilitation and cerebral neoplasms The experience of the past decade has demonstrated that initially we were too conservative most probably because we were more impressed with the external manifestations of the convulsive reaction that we were with the internal physiologic alterations which take place with a seizure We know now that patients with a history of angina or a previous coronary occlusion may be treated with ECT The decision as to whether or not a patient with cardiovascular disease should be treated with ECT should not rest in the hands of the internist or the cardiologist who is unfamiliar with the effect of convulsive therapy It is the psychiatrist on the basis of his knowledge of ECT who must determine the advisability of treatment.—F J Ayd, Jr, M D, Progress in Electro-Convulsive Therapy, *Maryland State Medical Journal,* March, 1956

MEDICAL NEWS

CALIFORNIA

Study on Effects of Smog—A two-year study of the chronic effects of smog on normal lungs and lungs affected with tuberculosis and other respiratory diseases will be made at the Collis P and Howard Huntington Memorial Hospital Institute of Medical Research under a grant from the Pasadena Tuberculosis Association Dr Clinton H Thienes, institute director, will conduct the project, studying the effects of ozone, nitrogen dioxide, and mixtures of the two on lungs of normal animals and those suffering with tuberculosis

Disaster Planning for Medical Services—The *Bulletin of the Alameda-Contra Costa Medical Association* devotes a 32-page section of its April issue to a detailed treatment of "Disaster Planning for Medical Services," prepared by the disaster committee of the association with the assistance of the offices of civil defense of Alameda and Contra Costa counties Dr Wayne P Chesbro, Berkeley, chairman of the committee, contributes an article on 'Disaster Planning Organization of ACCMA Other articles are on hospital disaster planning, area status of disaster planning, radiological disaster planning, organization of resources in state and federal disaster planning, and legal information concerning liability, responsibility, and compensation of physicians in disaster service

Personal—Dr Arnold M Scholz, Los Angeles, medical director of the Pacific Electric Railway Hospital Association, recently retired after 40 years of company service He was honored at a luncheon, where fellow employees presented him with a watch Dr E Craig Heringman, West Los Angeles, was appointed as his successor ---Dr Dave F Dozier, Sacramento, has been appointed by Governor Knight as a member of the State Board of Public Health, to succeed the late Dr James F Rinehart of San Francisco ---Dr Russell I Johnson, Midway City, was recently given the annual Community Service award of American Legion Post 555 Dr Johnson was president of the medical staff of Santa Ana Community Hospital in 1952 and is presently a member of the Midway City Sanitary Board He has served in the Midway City Fire Department and local boy scout organizations and is a past-president of the Rotary club ---Dr Dennis S Shillam, chief pathologist at Pomona Valley Community Hospital since 1950, has resigned his post to become director of laboratories at Collis P and Howard Huntington Memorial Hospital in Pasadena Dr Jay James Palmer, senior pathologist at the Veterans Administration Center in West Los Angeles for the past nine years, succeeds Dr Shillam as pathologist at Pomona Valley Community Hospital

CONNECTICUT

Cancer Record Register—According to the state department of health, records on cancer for all of Connecticut over the period 1935-1951 show significant progress, which may be attributed to improvement in diagnosis and treatment Cancer in Connecticut, 1935-1951" contains data on 75,494 cases recorded in the Connecticut Cancer Record Register, which is said to be the only known continuous record over so long a period of all recognized cases of cancer collected from the total population of the state with a lifetime medical follow-up Five-year survivals of Connecticut cancer patients increased from 19% (1935-1940) to 25% (1947-1951) for males and from 29 to 38% in the same periods for females The study shows that 39% of patients with localized cancer in the 1935-1940 period met the five-year survival index, and this increased to 44% in the 1941-1946 span and 51% in the 1947-1951 interval In cases in which cancer had not been detected early enough but had spread to nearby tissues, the five-year survival index increased from 18 to only 22% in these same periods, while the proportion of those with distant spread of their disease remained at about 2% for the entire 17-year period Marked improvement was noted in survival rates for those with cancer of the large intestine, rectum, prostate, thyroid, uterine cervix, or main body of the uterus The report indicates relatively no improvement, however, in survival rates for those with cancer of the stomach, lung, esophagus or ovary Cancer incidence rates were higher for urban than for rural populations

LOUISIANA

Course in Music Therapy Established at Tulane—A course of study leading to the profession of music therapy has been established at Tulane University School of Medicine, New Orleans, effective in September The new program has been established in response to the growing need for persons trained in the field of music therapy for work in hospitals or with physically or emotionally maladjusted children The program will include courses equivalent to a major course of study in music at Tulane, with emphasis on practical performance, also courses in general, abnormal, and social psychology, psychology of adolescence, social problems, the family, and introduction to sociology The new program was established through the efforts of Mr Durel Black, senior partner in a New Orleans general insurance firm, and Loyd W Rowland, Ph D, director of the Louisiana Association for Mental Health, who have been active in the encouragement of the use of music as a treatment for the mentally ill

MASSACHUSFTTS

Grant for Research on Vaccines—The department of tropical public health, Harvard School of Public Health, Boston, has received a three-year grant of $30,000 from the Lederle Laboratories division of the American Cyanamid Company for study, by the tissue culture method, of chickenpox, German measles, and other infectious diseases for which specific preventive measures such as vaccines have not yet been developed This research work will be under the direction of Dr Thomas H Weller who shared the 1954 Nobel Prize in Medicine and Physiology as a co-discoverer of the tissue culture method of growing viruses

Study of Rehabilitation Techniques—A grant of $105,000 has been made by the U S Office of Vocational Rehabilitation to the Robert B Brigham Hospital, Boston, to support a three-year study of rehabilitation techniques on patients suffering from arthritis and other rheumatic diseases Rehabilitation services of the Bay State Society for the Crippled and Handicapped the Community Workshops, and the State Division of Vocational Rehabilitation will be integrated with the services of the hospital, which has been specializing in the treatment of arthritis for over 40 years Co-directors of the project are Dr Joel C Goldthwait, visiting physician at the hospital, and Mr Wallace J Fletcher The total cost of the project is $156,000, and the grant is being supplemented by services and funds from the participating agencies as well as financial support from the Arthritis and Rheumatism Foundation

Personal—Dr Paul Dudley White delivered the Herman G Weiskotten Lecture at the annual Syracuse Medical Alumni Association meeting at the State University of New York College of Medicine at Syracuse June 9 on Health vs Disease or a Plea for Positive Health ---Dr Oliver Cope, associate professor of surgery, Harvard Medical School, Boston, served as visiting professor of surgery, June 6-9, at the University of Cincinnati College of Medicine Dr Cope also addressed the University of Cincinnati College of Medicine Alumni Association at its annual dinner June 7, where he presented The Conflict Between Facts and Wisdom in Medicine"---Dr Sydney S Gellis, pediatrician-in-chief, Beth Israel Hospital, Boston, since 1951, has been appointed professor of pediatrics and chairman of the department at Boston University School of Medicine and administrative head of the department of pediatrics of the Boston City Hospital

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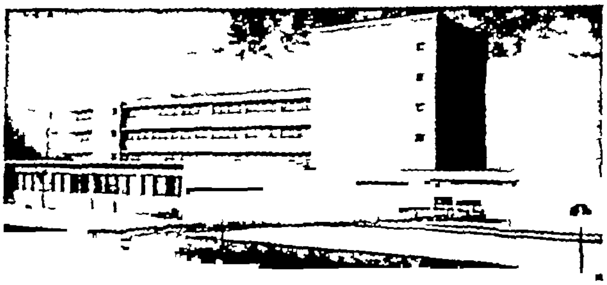
Physicians are invited to send to this department items of news of general interest for example, those relating to society activities new hospitals, education and public health Programs should be received at least three weeks before the date of meeting

Dr Cellis has been a member of the staff in pediatrics at Yale University School of Medicine, New Haven Conn Johns Hopkins University School of Medicine Baltimore Childrens Hospital Research Foundation Cincinnati and the Childrens Hospital and Harvard Medical School Boston —Dr David G Freiman pathologist-in-chief Beth Israel Hospital Boston has been appointed clinical professor of pathology at the Harvard Medical School Dr Freiman formerly was associate professor of pathology at the University of Cincinnati College of Medicine From 1944 to 1950 when he was affiliated with the Massachusetts General Hospital in Boston Dr Freiman was instructor in pathology at Harvard Medical School

MICHIGAN

Childrens Psychiatric Unit—The University of Michigan Ann Arbor recently dedicated the Childrens Psychiatric Unit of the University Hospital as the first unit of a proposed childrens hospital that will provide all the usual pediatric services and will enable the university to expand its educational programs for students who plan to enter pediatric service The 2-million-dollar building consists of four patient floors each containing a dining room and play and sleeping areas and a one-story wing that houses the offices and consulting rooms for the outpatient department It will accommodate 75 patients up to the age of 14 years Each patient will receive regular instruction so that he will be prepared to reenter school when released Workshops for woodcraft sewing and other handicrafts are part of the occupational therapy and school areas The outside playground has a wading pool sandbox picnic tables and grill baseball and volley ball areas and athletic equipment The unit contains a 26-ft swimming pool a fully equipped gymnasium and a 114-seat auditorium The new building has freed space in the Neuropsychiatric Institute that is being converted into a 25-bed ward for treatment of emotionally disturbed adolescents aged 13-18


Childrens Psychiatric Unit Building at the University of Michigan

MISSISSIPPI

State Medical Election—At the annual meeting of the Mississippi State Medical Association Dr Henry C Ricks Jackson was installed as president and Dr Howard A Nelson Greenwood, was chosen president-elect

University News—Dr Elmer E Pautler Jr chief of laboratory service in the U S Army hospital at Fort Campbell Ky was named associate professor of pathology at the University of Mississippi Medical Center in Jackson effective Aug 1 Dr Pautler was previously assistant professor of pathology at the University of Miami School of Medicine Coral Gables Fla

MISSOURI

Golden Anniversary Bulletin—In honor of its diamond jubilee the Jackson County Medical Society has published a 456-page golden anniversary bulletin (June 30) The volume contains a *history of the county society* and of the Missouri State Medical Association as well as information concerning hospitals societies medical centers clinics and other institutions and organizations

NEVADA

State Medical Meeting in Reno—The 53rd annual meeting of the Nevada State Medical Association (*Dr Frederick M Anderson* Reno, president) and the 7th annual conference of the Reno Surgical Society (Dr Wesley W Hall Reno, president) will convene jointly at the Riverside Hotel Reno Aug 22-25 The sessions will open Wednesday with a luncheon at the Hotel Mapes Mr Leo E Brown Chicago director A M A Department of Public Relations will speak on "Accentuate the Positive" Mr Brown will speak Thursday afternoon on "Medical PR U S A" Thursday noon the luncheon speaker will be Dr George F Lull Secretary-General Manager of the American Medical Association His topic will be "What the A M A Offers You" Dr Lull will discuss "Medical Legislation" at 4 05 p m Friday *Other guest speakers and their dual presentations* include

Frederick C Cordes San Francisco Endocrine Exophthalmos Ocular Manifestations of Diabetes
Russell R deAlvarez Seattle Toxemias of Pregnancy Use of Hormones in Obstetrics and Gynecology
William C Deamer San Francisco Prevention and Treatment of Hay Fever and Asthma in Childhood Problem Presented by Normal Puberty in Boys and Girls
LeRoy D Fothergill Walkersville Md. Pathogenesis of Respiratory Infections Biological Warfare and Its Defense
Henry N Harkins Seattle Choice of Surgical Treatment for Peptic Ulcer Present Status of the Treatment of Burns
William L Hewitt, Los Angeles Antibiotic Problems in the Management of Infectious Diseases Clinical Features and Treatment of Gram-Negative Bacillary Infections
Nil P Larsen Honolulu T H Diagnostic Problems Atherosclerosis and the Animal Fat Diet
Fredrick J Stare Boston, Nutrition and Cardiovascular Disease Fat Emulsions in Parenteral Nutrition
Joseph A Weinberg, Long Beach Calif., Vagotomy and Pyloroplasty in Treatment of Duodenal Ulcer Regional Lymphatics in Treatment of Cancer of the Colon

Cocktail parties 7 p m have been scheduled for Wednesday at the Supper Club Moana Lane and for Thursday at Roaring Camp Harolds Club a round-table luncheon has been planned for Friday noon and a banquet for Friday evening at the Riverside The banquet speaker Dr Larsen medical adviser Hawaiian Sugar Planters Association will present "Ancient Hawaiian Medicine" Saturday morning will be devoted to a panel discussion moderated by Dr John W Cline San Francisco Past-President of the American Medical Association The womans auxiliary will meet simultaneously

NEW JERSEY

Hospital News—The Atlantic City Hospital will have as visiting chief pro-tem Dr Alexander Marble Joslin Clinic, Boston, Aug 13-17 There will be no programs for Aug 20-24 and Aug 27-31

Dr Cosgrove Honored—On Oct. 13 Dr Samuel A Cosgrove, former medical director and superintendent Margaret Hague Maternity Hospital Jersey City and clinical professor of obstetrics Columbia University College of Physicians and Surgeons New York, will be guest of honor at a reception and dinner attended by his former hospital residents and colleagues. A special expanded issue of the *Bulletin of the Margaret Hague Maternity Hospital* dedicated to him, will be presented by Dr Joseph P Donnelly the present medical director Since the hospital opened in 1931 over 170 000 babies have been delivered there and approximately 140 physicians have completed residency training in obstetrics

NEW YORK

Society News—The Research Society of the State University College of Medicine in Brooklyn recently elected Dr Julius Belford Ph D president Dr Richard L Day vice-president, and Dr Albert Hirschman Ph D secretary-treasurer

Dr Street Honored—Dr William Walter Street clinical professor of medicine State University of New York College of Medicine at Syracuse was honored by his colleagues June 21 at a dinner held at Drumlins marking Dr Streets retirement from 36 years of teaching at the college of medicine in order to devote full time to private practice The main speakers at the dinner were Dr William R. Willard, dean of the college of medicine Dr Richard H Lyons professor and chairman of the department of medicine and Drs Edward C Reifenstein Sr and Wardner D Ayer Among the 60 guests at the dinner were members of the department of medicine at the college and former medical residents who had been students of Dr Street.

New York City

Clinic for Corneal Transplants —A clinic is held every Monday morning in the outpatient department of Kings County Hospital to evaluate patients for corneal grafting, under the auspices of the State University of New York College of Medicine at New York City, Brooklyn, through the cooperation of the Eye Bank for Sight Restoration Inc , 210 E 64th St , Manhattan, the Kings County Hospital, Brooklyn, which has been contributing corneas to the eye bank for several years and which provides facilities for corneal transplants, and the state university, which provides the physicians

Courses on Accident Prevention —The Center for Safety Education at New York University has scheduled the following courses on accident prevention

Sept 24-Jan 14 Accident Prevention—Its Background, Objectives and Relationships (SC-1), *Philosophy and Basic Principles of Accident Prevention* (SC-2)
Sept 25-Jan 22, Industrial Hazards—Mechanical and Personal Control Methods (SC-3) *Principles of Safety Inspection* (SC-14), Marine Accident Prevention (SC-17)
Sept 26-Jan 16 Accident Prevention for Motor Vehicle Fleets (SC-9)
Sept 27-Jan 17 *Industrial Safety Technology and Instrumentation* (SC-18) Fire Prevention and Protection Inspection (SC-8)

Information may be secured from the Center for Safety Education, New York University, Room 42, 6 Washington Square North, New York 3 (telephone SPring 7-2000, extension 312 or 632)

Society News —The Committee to Protect Our Children's Teeth, Inc (105 E 22nd St) has been organized "to spread facts and correct misinformation on fluoridation of water supplies' Dr Benjamin M Spock of Pittsburgh, visiting professor of child development at Western Reserve University, Cleveland, is chairman of the committee, which has as vice-chairmen Mrs Mary W Lasker, president of the Albert and Mary Lasker Foundation, Mr Basil O Connor, president, National Foundation for Infantile Paralysis, Dr Thomas Parran, dean, Graduate School of Public Health, University of Pittsburgh, and Dr William P Shepard New York, second vice-president for health and welfare, Metropolitan Life Insurance Company The State Charities Aid Association, a voluntary organization that is participating with the committee in its educational campaign, is accepting contributions toward a $100,000 budget for "an intensive campaign through all available media "

Emeritus Professors —Columbia University has designated as emeritus members of the faculty Dr Joseph Schroff, William Carr Professor of Oral Surgery, who has served on the Columbia University College of Physicians and Surgeons since 1921, and Dr Alan DeForest Smith, who taught at the college for 37 years, serving as professor of orthopedic surgery since 1940 and as executive officer of the department since 1947 Dr Smith retires *also from* directorship of the New York Orthopaedic Dispensary and Hospital Dr Smith is consulting orthopedic surgeon to the Roosevelt Hospital, Southampton (N Y) Hospital, and Greenwich (Conn) Hospital and consultant to the New York City Department of Health, the New York State Department of Health, and the National Foundation for Infantile Paralysis Retiring from his academic posts only, Dr Smith will retain his private practice Dr Schroff holds the honorary position of consultant in oral surgery at the Mount Sinai Hospital, where he served for 24 years as chief in oral surgery He is currently attending oral surgeon at the Jewish Memorial and Presbyterian hospitals

NORTH CAROLINA

"The Professor" Award —Dr John T Sessions, assistant professor of medicine, University of North Carolina School of Medicine, Chapel Hill, was named as the first recipient of "The Professor' award, given by the senior class to the member of the faculty who in their opinion contributed most to their medical education in their four years in the medical school

Accidental Deaths —According to Dr Charles M Cameron, Raleigh, accident epidemiologist of the North Carolina State Board of Health, home and farm accidents in 1955 claimed the lives of 764 North Carolinians, to account for one-third of the state's total accidental deaths Non-motor-vehicle accidents remained as the leading cause of deaths among infants and children Total fatalities from accidents in the home and on the farm decreased, however, while other types of accidental deaths increased or remained stationary Dr Cameron points out, 'The 1955 death rate from home and farm accidents was 17 7 per 100,000 persons in the state while the 1954 rate was 19 4 If the savings of lives achieved in 1955 had been possible five years ago, over 500 North Carolinians now dead would be live, contributing citizens of the state "

Personal —Dr W Reece Berryhill, dean, University of North Carolina School of Medicine, Chapel Hill, received the honorary degree of doctor of science at the commencement exercises of Davidson College in Davidson —Dr Harold R Pratt-Thomas, Charleston, has received the American Cancer Society award for 1955 "in recognition of his important contributions to the control of cancer" in the fields of research and diagnosis —The Deryl Hart Society is being organized by former residents who served under Dr Deryl Hart, professor of surgery, Duke University School of Medicine, Durham Dr Hart was recently elected vice-president and president-elect of the Southern Society of Clinical Surgeons and president of the Southern Surgical Association —Dr Paul F Whitaker of Kinston was recently elected president of the University of North Carolina Medical Foundation, Chapel Hill, to succeed Major Lennox P McLendon, LL B , of Greensboro, whose new duties as a member of the State Board of Higher Education prompted his resignation —Dr Nelson K Ordway, professor of pediatrics, University of North Carolina School of Medicine, Chapel Hill, recently participated in the International Seminar on Organization of Children's Hospitals in Paris, France, conducted by the International Children's Center Dr Ordway, who was the official United States representative at the meeting, presented a paper entitled, "Organization of Newborn and Infant Services " Dr Ordway was also invited to address the Vienna Medical Society at Vienna, Austria, and to be a guest of the department of pediatrics of the University of Vienna Medical School during his stay in Austria

SOUTH CAROLINA

Annual Scientific Meeting —The staff of Self Memorial Hospital, Greenwood, will hold its sixth annual *scientific* session Aug 25 The following papers will be presented

Scapulo-Costal Syndrome Arthur A Michele Brooklyn N Y
Brain Injuries Edgar F Fincher, Emory University, Ga

Fluid and Electrolyte Balance Kathleen E Roberts New York
Curable Deliriums Eugene A Stead Durham N C

Oral Manifestations of Systemic Disease Emanuel Cheraskin Birmingham, Ala

A motion picture, Constrictive Pericarditis, will be presented by Drs R Brooks Scurry and Richard E Hunton, with discussion by Drs Wiley N Price and George Dillard, all of Greenwood A panel discussion on low back pain by Drs Michele, Fincher, Stead, and James A McQuown, Greenwood, will conclude the program There will be entertainment and a barbecue at the Greenwood Golf Club in the evening

GENERAL

Deaths from Tornadoes —According to the Metropolitan Life Insurance Company (1 Madison Ave , New York), tornadoes in the United States took 1,766 lives during the decade 1946 through 1955 and inflicted injuries on about 10 times that many persons Over the past 40 years there has been a tendency for the fatality toll to decrease from one decade to the next 1916-1925, 3,114, 1926-1935, 2,138, and 1936-1945, 1,896

Twelve Motorized Health Units —The International Ladies Garment Union, AFL, has announced plans for a fleet of 12 mobile units, equipped with x-ray facilities, dressing rooms, and eye-testing apparatus and manned by a doctor, a nurse, and a technician These units, which will serve the health needs of some 120,000 members in sparsely settled areas of the South, Midwest, and Far West, are patterned after a $35,000 unit already operating in western Pennsylvania

Found—Watch and Reading Glasses—A watch and a pair of reading glasses were found in the A M A building during the time of the Annual Meeting in June Since no one in the building has responded to the notices placed on each floor perhaps one of the many persons who visited the headquarters during the meeting may have left these articles Both items are being held in the office of the Bureau of Personnel and Industrial Relations at A M A headquarters

Blind Golfers Association—The United States Blind Golfers Association held its annual golf tournament July 27-29 at the Navajo Hills Country Club Worth, Ill, under the sponsorship of the Lions Club Transportation and maintenance of the sightless contestants during the tournament and the general expenses of the tournament are assumed by the association Those wishing to contribute to the organization may send donations to United States Blind Golfers Association c/o Professional Golfers Association of America 134 N LaSalle St Chicago 2

Scholarships for Investigators and Teachers—Through an institutional grant from the Commonwealth Fund, the New York University College of Medicine will initiate an honors program and merit scholarships for the encouragement and support of students who wish to prepare for careers of investigation and teaching in medicine The honors program which will begin in the fall will be open on a volunteer basis to about 15 students in each class qualified to carry the additional work that the program will add to the regular assignments of the present curriculum Application for participation may be made at the time of applying for admission to the college or any qualified student may join the program in his second or third year Each student will be eligible for a position as research assistant in one of the departmental research laboratories during the second, third and fourth years Merit scholarships will be awarded annually commencing in September 1957 and will provide $1,500 annually for tuition and other expenses renewable each year for four years Application should be submitted at the time application is made for admission to the college of medicine Four one-year predoctoral scholarships of $1 500 each will be offered annually to candidates for the Ph D degree in the basic medical sciences commencing in September 1957 Application may be made on applying for registration as a predoctoral student in September 1956 and thereafter For information contact Office of the Dean New York University—Bellevue Medical Center 550 First Ave New York 16

Radiological Conference—The 18th Midsummer Radiological Conference of the Rocky Mountain Radiological Society will convene at the Hotel Shirley Savoy Denver Aug 16 18 under the presidency of Dr Maurice D Frazer Lincoln Neb Addresses of welcome will be delivered by Dr Clarence E Hufford, Toledo Ohio president Radiological Society of North America Dr Robert T Porter Greeley, Colo president Colorado State Medical Society Dr Bradford J Murphey Denver, president, Denver Medical Society and Dr Raymond R Lanier Denver president Colorado Radiological Society "The Significance of the Iowa Decision on the Future of American Medicine and Hospital Relations" by Dr Walter D Abbott, Des Moines will precede a luncheon meeting with the guest speakers The afternoon scientific session will open at 1 p m with a symposium, "Hospital and Insurance Plans in Relation to American Medicine and will close with "Current Status of Radiotherapy in Carcinoma of the Cervix and Carcinoma of the Endometrium by Dr Isadore Lampe Ann Arbor Mich The guest speakers dinner (informal) will be at 6 p m At 8 p m at a joint meeting with the Denver Medical Society a seminar "The Use of Radiation Therapy in the Treatment of Benign and Malignant Diseases," will be moderated by Dr Raymond R Lanier Denver, with Dr Lampe and Dr Frank H Tanner, Lincoln, Neb, as collaborators The Friday morning session will include a seminar on gastrointestinal bleeding a symposium on highway safety, and luncheon with the guest speakers, one of whom, Dr Fred J Hodges Ann Arbor Mich will present "The Rapid Development and Future Promise of Angiography" at 2 20 p m A social hour, 6 p m, will precede the banquet (informal) Friday evening A trip to Central City has been scheduled for Saturday with dinner at the Teller House, 6 p m and a play ("The Lark," starring Miss Julie Harris) at the Central City Opera House, 8 15 p m

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	July 14 1956		July 16 1955
	Paralytic Type	Total Cases Reported	Total
New England States			
Maine		1	1
Vermont			
New Hampshire			
Massachusetts	1	3	62
Rhode Island			5
Connecticut		2	6
Middle Atlantic States			
New York	7	18	48
New Jersey	1	1	16
Pennsylvania		2	10
East North Central States			
Ohio	3	14	21
Indiana	1	4	6
Illinois	75	104	29
Michigan	[illegible]	12	31
Wisconsin		6	14
West North Central States			
Minnesota	1	3	2
Iowa	2	10	14
Missouri	2	9	10
North Dakota			4
South Dakota			
Nebraska		3	8
Kansas	[illegible]	12	8
South Atlantic States			
Delaware	1	1	
Maryland			2
District of Columbia			2
Virginia	7	11	8
West Virginia	1	4	1
North Carolina	2	7	20
South Carolina		2	15
Georgia		7	6
Florida	1	8	9
East South Central States			
Kentucky		3	10
Tennessee	8	5	9
Alabama		1	3
Mississippi		4	15
West South Central States			
Arkansas		4	11
Louisiana	21	20	3
Oklahoma		9	8
Texas	29	60	83
Mountain States			
Montana		1	
Idaho	3	7	6
Wyoming			
Colorado		1	2
New Mexico			4
Arizona	1	3	3
Utah		1	3
Nevada			2
Pacific States			
Washington	2	5	7
Oregon	1	2	5
California	30	59	49
Territories and Possessions			
Alaska			
Hawaii			2
Puerto Rico	1	1	5
Total	213	430	572

Pamphlet for Ministers on Mental Health—The National Association for Mental Health (1790 Broadway New York 19) has issued a pamphlet Pastoral Help in Serious Mental Illness," the third of a special series designed to give the clergy an understanding of psychiatric disorders and their effects on the patient, his family and the community The 12-page pamphlet tells the minister how to recognize a psychotic parishioner and refer him to appropriate community resources and suggests ways in which the minister can cooperate effectively with the psychiatrist and with the patient s family before during and after hospitalization The pamphlet is available to the general public for 10 cents a copy with special rates for quantity lots

Congress of Otolaryngology—The sixth International Congress of Otolaryngology will be held May 5-10 1957, at the Hotel Statler, Washington, D C, under the presidency of Dr Arthur W Proetz. Topics for the plenary sessions will include Chronic Suppuration of the Temporal Bone, Collagen Disorders of the

Respiratory Tract, and Papilloma of the Larynx Those wishing to present voluntary papers or motion picture films should apply before Oct 1 The American Express Company has arranged three concurrent postcongress tours, which will begin May 11 Tour 1 (Eastern United States, 7 days) will include Baltimore, Philadelphia, Boston, and New York, Tour 2 (Middle West, 17 days) will include Baltimore, Philadelphia, St Louis, Iowa City, Rochester (Minn), Chicago, Detroit, Niagara Falls (N Y), Boston, and New York, and Tour 3 (West Coast, 3 weeks) will visit Baltimore, Philadelphia, St Louis, the Grand Canyon, Los Angeles, San Francisco, Chicago, Niagara Falls, and New York All three will be in Philadelphia at the time of the sixth International Congress of Bronchoesophagology, May 12-13 Tours 2 and 3 will be in St Louis at the time of the International Congress of Audiology, May 14-16, and Tour 2 will be in Chicago at the time of the International Voice Conference, May 20-22 For information communicate with Dr Paul H Holinger, General Secretary, Sixth International Congress of Otolaryngology, 700 N Michigan Ave , Chicago 11

LATIN AMERICA

Congress of Dermatology —The third Ibero Latin American Congress of Dermatology, organized by the Colegio Ibero Latino Americano de Dermatologia, will be held in Mexico City, Oct 21-27 The program will include scientific sessions, social reunions, and tours to interesting places of Mexico Official languages will be Spanish, Portuguese, French, and Italian Wagons Lits/Cook Co , will be the official agency for the congress For information write to Centro Dermatologico Pascua, 1/a Calle Dr Garciadiego 21, Mexico, 7, D F , Mexico

Inter-American Seminars —An Inter-American Seminar, organized by the American Hospital Association, the International Cooperation Administration of the U S A , the Inter-American Hospital Association, and the National Department of Public Health of Chile, will be held in Santiago, Chile, Aug 18-22 Information is obtainable from Dr Abraham Horwitz, Casilla 41, D , Santiago Chile —An Inter-American Seminar, organized by the American Hospital Association, the International Cooperation Administration of the U S A , the Inter-American Hospital Association, and the Department of Public Health of Guatemala, will be held in Guatemala City Aug 13-15 Information is obtainable from Dr Salvador Hernandez V , the Secretary of the Seminario Interamericano de Administration de Hospitales at Hospital Roosevelt, Guatemala City, Guatemala

FOREIGN

Congress Against Alcoholism —The 25th International Congress Against Alcoholism will convene in the Faculty of Science Building, Istanbul University, Istanbul, Turkey, Sept 10-15 Topics for discussion will include Alcoholism—a World Problem, The Problem in the Middle East, the Growing Alcoholism in the World Today, and The Etiology of Alcoholism from the Sociological and Psychiatric Aspects A session on treatment will open with "The Dynamics of Alcohol Addicts by Dr Joseph Thimann, Boston, and will include "Carbon Dioxide Treatment of Chronic Alcoholics" by Ladislas J Meduna, Chicago Information may be obtained from the congress secretary, Archer Tongue, International Bureau Against Alcoholism, Case Gare 49, Lausanne, Switzerland

Meeting of German Gynecologists —The German Gynaecological Society will meet in Heidelberg, Sept 18-22 The subjects for discussion include Preservation of the Life of the Fetus During Pregnancy and Birth, Anoxia of the Newborn, Exogenous Causes of Intrauterine Fetal Death and Its Prevention, Causes of Perinatal Mortality in the Light of Genetics, The Importance of the Cervical Factor in Sterility, The Incidence of Uterine Cancer in Different Social Strata, Further Experience with Prophylactic Mass Examination in Fighting Cancer, Chorioepithelioma and Chorioepitheliosis, Possibilities of Relieving the Parturient Woman from Fear and Pain, and Early Diagnosis of Cancer with Special Consideration of Histology and Cytology Communications should be addressed to Prof Dr Hans Runge, President, German Gynaecological Society, Universitats-Frauenklinik, Heidelberg, Germany

Meeting on Industrial Medicine —The 21st anniversary meeting of the Association of Industrial Medical Officers will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W C 1, Sept 24-28 A reception is to be held at Canterbury Hall on Monday evening Tuesday morning, after the presidential address by Dr R S F Schilling, the program will be devoted to "The Elderly Worker' Dr Schilling will deliver the British Medical Association MacKenzie Memorial Lecture Tuesday afternoon at the British Medical Association headquarters in Tavistock Square The topic for Wednesday morning is 'Research in Occupational Health ' On Thursday morning "Weight Handling" will be treated in a lecture-demonstration, and a lecture, "The Impact on Medicine and Industry of the Use of Atomic Energy," will be presented The John C Bridge Memorial Lecture is scheduled for Thursday afternoon and the anniversary dinner at the Royal College of Surgeons, Lincolns Inn Fields, for Thursday evening The Friday morning session will be devoted to "Mental Health in Industry " Inquiries should be addressed to Dr P A B Raffle, Chairman, Anniversary Meeting Committee, A I M O , Griffith House, 280, Marylebone Road, N W 1, London, England

CORRECTION

Treatment of Cirrhosis of the Liver —In the abstract "Treatment of Cirrhosis of the Liver with Large Doses of Testosterone" in The Journal of July 7, page 1010, the sentence 'Diuretics should be given only to patients who have had serious kidney complications" should read "Diuretics should be given only to patients who have had no serious kidney complications '

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners *Various Centers* September 4-5 (Part I) Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made New candidates should apply by formal registration, registered candidates may notify the board indicating desired location date and candidate number Ex Sec Dr John P Hubbard 133 South 36th St , Philadelphia 4

BOARDS OF MEDICAL EXAMINERS

Illinois *Examination and Reciprocity* Chicago, Oct 9-11 Supt of Regis Mr Frederic B Selcke, Capitol Building Springfield

Louisiana *Homeopathic* Subject to call Sec , Dr F H Hardenstein 903 Pere Marquette Bldg , New Orleans 12

Montana *Examination and Reciprocity*, Helena Oct 2-3 Sec. Dr S A Cooney, 7 West 6th Ave Helena

Nevada *Reciprocity* Reno, July 3 Sec Dr G H Ross, 112 North Curry St Carson City

New Hampshire *Examination and Reciprocity* Concord, Sept 12 13 Sec , Dr John S Wheeler 107 State House Concord

North Carolina *Endorsement* Raleigh Sept 24 Sec Dr Joseph J Combs, Professional Bldg Raleigh

Oregon * *Reciprocity* Portland, Oct 19-20 *Examination* Portland January Ex Sec. Mr Howard I Bobbitt 609 Failing Bldg , Portland 4

Texas * *Examination and Reciprocity* Fort Worth, Dec. 6-8 Applications for reciprocity must be complete and on file at least thirty days prior to the December meeting and applications for examination must be complete and on file at least ten days prior to the meeting date Sec Dr M H Crabb, 1714 Medical Arts Bldg , Fort Worth 2

Alaska * On application in Anchorage, Fairbanks Juneau and other towns Sec , Dr W M Whitehead, 172 South Franklin St Juneau

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

District of Columbia *Examination* Washington Oct 22-23 Deputy Director Mr Paul Foley 1740 Massachusetts Ave , N W , Washington

Oklahoma *Examination and Reciprocity* Oklahoma City, Sept 28-29 Sec. Dr E F Lester 813 Braniff Bldg , Oklahoma City

Oregon *Examination* Portland, Sept 8 and Dec 1 Dr Earl M Palett Sec State Board of Higher Education, Eugene

Rhode Island *Examination* Providence, Aug 29 Administrator of Professional Regulation Mr Thomas B Casey 366 State Office Bldg , Providence

Texas *Examination* Austin, October Sec , Bro Raphael Wilson 407 Perry-Brooks Bldg , Austin

Wisconsin *Examination* Madison Sept 21 Milwaukee Dec 1 Sec Dr W H Barber, 621 Ransom St Ripon

Alaska *Examination and Reciprocity* Anchorage and Juneau, first week of February, April, June, August and November Sec , Dr C Earl Albrecht, Box 1931, Juneau

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*Basic Science Certificate required

GOVERNMENT SERVICES

NAVY

Personal—Capt Charles F Gell M C U S N, received the degree of doctor of science (med) for work in physiology, from the Graduate School of Medicine University of Pennsylvania, at the commencement June 13 Captain Gell who is superintendent of the Air Crew Equipment Laboratory, Naval Air Material Center Philadelphia earned the degree in an outservice course capacity over the past six years His dissertation was based on original research involving biological changes in mammals resulting from the various environmental stressors in flight He also developed a quick-freeze fixation method for the study of gross physiopathological changes in mammals under acceleration stress Captain Gell has been associated with the University of Pennsylvania for the past seven years as lecturer in aviation physiology in the Graduate School of Medicine and assistant professor of physiology in the school of medicine He has been a naval medical officer for the past 20 years

Rear Adm Bartholomew W Hogan surgeon general received an honorary degree of doctor of science at Marquette University, Milwaukee Wis on June 3

Correspondence Course Withdrawn from Circulation—The Bureau of Medicine and Surgery announces that the correspondence course Tropical Medicine in the Field is withdrawn from circulation due to obsolescence of certain text material contained therein and will not be reissued in its present form to new applicants Since credit is allowed only for completion of the entire course (Regular Navy officer and enlisted personnel and Naval Reserve enlisted personnel) or unit (Naval Reserve officer personnel) all those currently enrolled must complete the course prior to June 30, 1957, in order to receive letters of satisfactory completion

Inspection Trip—Rear Adm Thomas F Cooper M C, medical inspector general left July 16 to inspect naval medical facilities and installations in Alaska the Far East South East Asia and the Pacific area The inspection trip will take approximately 40 days to complete

VETERANS ADMINISTRATION

Enlarged Research Program—The Veterans Administration announces that an enlarged medical research program will be conducted with the 10 million dollars that Congress appropriated for the fiscal year beginning July 1, 1956—$4 300 000 more than was appropriated last year The increased medical research will be concentrated mostly in four areas (1) mental, nervous, and brain diseases (2) heart and artery diseases (3) cancer and leukemia and (4) problems of aging The VA also will expand its research program in tuberculosis in the fungus diseases and in the infectious diseases Renewed emphasis will be placed on individual research projects such as the isolation and identification of the factors that produce high blood pressure and the cause and nature of arteriosclerosis and metabolic diseases and on research on the brain areas where epilepsy and related nervous disorders originate

With the newly available funds, cooperative drug (chemotherapy) studies will be continued or instituted on the chemotherapy of multiple sclerosis and of psychiatric disorders, on the treatment of hypertension, and on the chemotherapy of cancer, co-sponsored by the U S Public Health Service, the American Cancer Society, and the U S Atomic Energy Commission

The VA will conduct two follow up studies to make an evaluation of the natural course of coronary artery disease and an evaluation of the long-term results of the chemotherapy of tuberculosis In all of these studies, the VA will be advised by the National Research Council Committee on Veterans Problems, the Statistical Agency of the National Research Council, and the Advisory Committee in Research of the VA

The VA radioisotope laboratories will continue to be used in the expanded research program to develop new and precise techniques for laboratory and clinical investigations These laboratories already have made possible fundamental research observations that have contributed to diagnostic and therapeutic methods Because the radioisotope laboratories are widely spread throughout the country, they will increasingly contribute to research in preventive measures concerned with atomic hazards Close affiliation with 74 medical schools permits the VA to profit by the experience and resources of scientists in those institutions who work with the VA medical care program The medical schools through their deans committees supervise VA research programs

End of Veterans Training Program—The Veterans Administration said that the largest veterans training program the world has ever known ended July 25 for all but a handful of World War II veterans It was the World War II GI bill—a law that has given more than 7 800 000 World War II veterans a chance to catch up with the years spent in military service A small handful of World War II veterans will be allowed to continue their studies in the months ahead the VA said These are veterans who enlisted in 1945 and 1946 under the Voluntary Recruitment Act as well as disabled veterans who have not been able to finish training under Public Law 16 because of certain hardship conditions

The original GI bill (Public Law 346, 78th Congress) was enacted on June 22 1944 When the GI bill program was at its peak educators estimated that two-thirds of all male students on the college campus were veterans Of the more than 7 800 000 veterans who received training 2,200 000 attended college 3 500 000 went to schools below the college level 1,400,000 took on-the job training and 700 000 enrolled in institutional on-farm training Of every 100 veterans trained under the GI bill 33 aimed for highly skilled trade and industrial jobs and 10 engaged in scientific studies including engineering and medicine The training program under the GI bill has cost 14.5 billion dollars

PUBLIC HEALTH SERVICE

Practical Nurses for Indian Hospitals—Nineteen young American Indian women from six states received diplomas on March 1 from the Indian School of Practical Nursing at Albuquerque N Mex, the Public Health Service announced The new practical nurses are expected to return to Indian reservations for employment in some of the 56 hospitals operated for Indians by the Public Health Service The present graduating class is the 24th since the school was established in 1936 The course requires one year for completion There is urgent need for nurses in the Indian hospitals, and to help meet this need the school graduates two classes each year The Indian tribes represented by these graduates are Hopi, Pima-Maricopa Apache, Yavapai, Tewa, Winnebago Jemez, Cochiti Choctaw, Cheyenne-Arapaho Sioux, and Alabama

New Heart Staff Appointments—Effective June 1, Dr William H Stewart chief of the heart disease control program, division of special health services Bureau of State Services, became assistant director National Heart Institute Bethesda, Md Dr R C Arnold, chief, technical services branch, National Heart Institute succeeded Dr Stewart as chief of the heart disease control program, Bureau of State Services, Washington D C Dr Bert R Boone, chief, laboratory of technical development, National Heart Institute was transferred to the office of the director, National Heart Institute, where he will serve as special projects officer Dr Robert L Bowman laboratory of technical development, National Heart Institute, became chief of the laboratory, succeeding Dr Boone

Cancer Journal to Become a Monthly—The *Journal of the National Cancer Institute* will be published monthly starting with vol 17 no 1, July, 1956 Thereafter, two volumes of six issues each will appear annually with no 1 in July and January This change of schedule, after 16 years of bimonthly publication has been made to increase the publication outlet for investigators engaged in cancer research Papers on basic research, clinical investigations statistical studies and critical reviews in cancer are invited The journal may be purchased from the Superintendent of Documents, U S Government Printing Office, Washington 25, D C Any changes in price for future volumes will be announced

DEATHS

Cogswell, William Forlong, Helena, Mont., Dalhousie University Faculty of Medicine, Halifax, Nova Scotia, Canada, 1894, in 1908 moved to Livingston to become the county health officer of Park County, appointed executive officer of the Montana State Board of Health in 1912 and continued to hold this position until his retirement in 1946, in October, 1953, his three sons presented the 47-bell Memorial Carillon in the Main Hall tower on the campus of Montana State University, dedicated in his name in recognition of his 34 years of public health service in Montana, honorary life member of the U. S. Public Health Service, an associate member of the American Medical Association, for many years secretary of the Montana Public Health Association, prominent in the field of public health and a pioneer in research on spotted fever, died May 26, aged 87, of chronic myocarditis

Greenwell, Joseph I. ⊕ New Haven, Ky., born in Balltown, Ky., Nov. 27, 1873, Hospital College of Medicine, Louisville, 1900, in 1953 selected by the American Medical Association as "general practitioner of the year", for many years councilor for the fourth district of the Kentucky State Medical Association, past-president of the Nelson County Medical and Muldraugh Hill Medical societies, acting health officer for Nelson County for eight years, consulting physician for the Louisville and Nashville Railroad, during World War II served four years as examining physician for the Nelson County Selective Board, served 25 years as a member of the board of trustees and 14 years as mayor, past-president of the medical staff at Flaget Memorial Hospital, Bardstown, a director and vice-president of the New Haven Bank, died in the T. J. Samson Community Hospital in Glasgow May 9, aged 82, of a heart attack

Gonzales, Thomas Arthur ⊕ New York City, born April 21, 1878, Bellevue Hospital Medical College, New York City, 1898, professor of forensic medicine at the New York University Post-Graduate Medical School, formerly on the faculty of the New York Medical College, Flower and Fifth Avenue Hospitals and the New York University College of Medicine, specialist certified by the American Board of Pathology, member of the American Association of Pathologists and Bacteriologists and the College of American Pathologists, formerly chief medical examiner for New York City, director of the laboratory, St. Elizabeth's Hospital, for many years on the staff of the Harlem Hospital, co-author of the book "Legal Medicine and Toxicology", died May 14, aged 77

Cholden, Louis Sidney, Los Angeles, born in Chicago Nov. 9, 1918, Chicago Medical School, 1947, interned at the Edgewater and University hospitals in Chicago, formerly a resident at the Topeka State Hospital in Topeka, Kan., and the Menninger Sanitarium in Topeka, Kan., at one time clinical assistant and clinical instructor in the department of psychiatry at his alma mater, member of the American Psychiatric Association, senior assistant surgeon in the U. S. Public Health Service Reserve, served as psychiatrist, clinical investigations, at the National Institutes of Health in Bethesda, Md., died in the Daniel Freeman Memorial Hospital, Inglewood, April 26, aged 37, of injuries received in an automobile accident

Clay, William Addison, Rochester, N. Y., born in Washington, D. C., March 15, 1920, University of Rochester School of Medicine and Dentistry, 1946, member of the Medical Society of the State of New York, certified by the National Board of Medical Examiners, interned at the Strong Memorial–Rochester Municipal Hospitals, where he served a residency, formerly a resident at the Genesee Hospital, the Barnes Hospital in St. Louis, and Jefferson Medical College Hospital in Philadelphia, from 1953 to 1955 served with the American occupation forces in Japan, died in the Veterans Administration Hospital in Washington, D. C., May 7, aged 36, of carcinoma of the common bile duct with metastases

Bishop, Frederick John, Scranton, Pa., born July 5, 1875, Medico-Chirurgical College of Philadelphia, 1899, an associate member of the American Medical Association, member of the American Broncho-Esophagological Association, past-president of the Medical Society of the State of Pennsylvania and the Lackawanna County Medical Society, specialist certified by the American Board of Otolaryngology, fellow of the American College of Surgeons, consultant, Nesbitt Memorial Hospital in Kingston, on the staffs of the Hahnemann, Scranton State, West Side, and Mercy hospitals, and the Moses Taylor Hospital, where he died May 7, aged 80, of cerebral hemorrhage

Weaver, James Branson, Kansas City, Kan., born in Belleville, May 18, 1897, University of Kansas School of Medicine, Kansas City, 1925, professor of surgery (orthopedic) at his alma mater, specialist certified by the American Board of Orthopædic Surgery, member of the Kansas Medical Society, Clinical Orthopædic Society, and the American Academy of Orthopædic Surgeons, veteran of World Wars I and II, for 30 years worked with the Kansas Crippled Children Commission and for the last three years member of its board, head of the orthopedic department of the University of Kansas Medical Center, where he died April 30, aged 58, of lobar pneumonia

Davis, Albert Burrows ⊕ Haddonfield, N. J., University of Pennsylvania Department of Medicine, Philadelphia, 1905, specialist certified by the American Board of Obstetrics and Gynecology, fellow of the American College of Surgeons, past-president of the Obstetrical and Gynecological Society of New Jersey, associate in obstetrics and gynecology at the University of Pennsylvania School of Medicine in Philadelphia until his retirement in 1952, chief of obstetrics at the Cooper Hospital, Camden, where he died April 23, aged 76, of coronary thrombosis

Adams, Ernest Marion ⊕ Central City, Iowa, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894, for many years on the school board, served on the staff of St. Luke's Methodist Hospital in Cedar Rapids, died April 21, aged 88, of cancer

Addy, Thomas Arnold, Middleport, N. Y., Trinity Medical College, Toronto, Canada, 1900, served on the staff of the Medina (N. Y.) Memorial Hospital, died in Medina May 7, aged 82, of chronic myocarditis

Argall, Albert Joseph ⊕ Denver, University of Colorado School of Medicine, Denver, 1910, fellow of the American College of Surgeons, veteran of World War I, on the staffs of the Childrens and St. Luke's hospitals, and St. Joseph's Hospital, where he died May 1, aged 70, of carcinoma of the kidney

Barney, Jennie Sarah, Franklin, N. H., Boston University School of Medicine, Boston, 1896, died Feb. 20, aged 94, of arteriosclerotic heart disease and cerebral accident

Bartlett, Marvin Harold ⊕ Garland, Texas, Baylor University College of Medicine, Houston, 1947, interned at Hermann Hospital in Houston, where he served a residency, died April 8, aged 32

Barton, Amos Ethan, St. Petersburg, Fla., University of Pennsylvania School of Medicine, Philadelphia, 1910, veteran of World War I, died in the Veterans Administration Center, Bay Pines, April 27, aged 80, of arteriosclerotic heart disease

Bigham, D. F., Easton, Mo., Ensworth Medical College, St. Joseph, 1903, died April 27, aged 83

Bild, Elmer Jacob, Page, Neb., Sioux City (Iowa) College of Medicine, 1903, died May 4, aged 79

Blakemore, William Harvey, Baker, Mont., Ensworth Medical College, St. Joseph, Mo. 1910, an associate member of the American Medical Association, died in the Holy Rosary Hospital, Miles City, May 8, aged 70, of cerebral thrombosis

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⊕ Indicates Member of the American Medical Association

Blanchard, Martha Kirstine Jensine Beckstrom, Mount Olive Ill Jenner Medical College Chicago 1910 died in St Francis Hospital Litchfield May 14 aged 77 of fracture of the lower end of the right femur and shock

Bottsford, Leslie Lee ⊕ Akron Ohio, University of Michigan Department of Medicine and Surgery Ann Arbor 1914 served on the staffs of St Thomas Hospital and the City Hospital where he died April 23 aged 68

Bradley, William Horace ⊕ Chicago College of Physicians and Surgeons of Chicago School of Medicine of the University of Illinois 1910 fellow of the American College of Surgeons on the staff of St Anthony de Padua Hospital died May 26 aged 73 of cerebral hemorrhage and diabetes mellitus

Brainard, C Brewster ⊕ West Hartford, Conn Yale University School of Medicine New Haven, 1898 specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians past-president of the Hartford County Medical Society associated with the Manchester (Conn) Memorial Hospital Bristol (Conn) Hospital Sharon (Conn) Hospital Neuro-Psychiatric Institute of the Hartford Retreat and the Hartford Hospital where he died May 8 aged 82 of coronary disease

Braude, Benjamin ⊕ Chicago Rush Medical College Chicago 1909 served as physician with the city health department city board of education and the Cook County Department of Welfare on the staff of the Franklin Boulevard Community Hospital died May 16 aged 69 of arteriosclerotic heart disease

Brewer, James Ardis, Detroit Leonard Medical School Raleigh N C , 1909 died May 13 aged 76

Brian, Nathaniel Moreland, Montgomery La Memphis (Tenn) Hospital Medical College 1911 an associate member of the American Medical Association died March 24 aged 67 of cerebral hemorrhage and arteriosclerosis

Brill, Isidore ⊕ Champaign Ill Chicago Medical School 1937 member of the American Academy of General Practice served during World War II was awarded the Army Air medal for meritorious achievement while participating in an aerial flight in the African theater on June 29 1943 on the staff of the Burnham City Hospital died April 29 aged 47 of coronary thrombosis

Brousseau, William Gilbert ⊕ Cambridge Mass Tufts College Medical School Boston 1896 for many years city physician on the staffs of Holy Ghost Hospital for Incurables Mount Auburn Hospital and the Cambridge City Hospital died April 12 aged 83 of a heart attack

Bullock, Eugene H., Long Beach Calif Ensworth Medical College St Joseph Mo 1891 at one time superintendent of the State Hospital number 2 at one time health commissioner of Kansas City Mo died in Norwalk (Conn) Hospital May 20 aged 88 of myocardial infarction

Buxton, Eva Joanna, West Memphis Ark Northwestern University Woman s Medical School Chicago 1897 member of the Arkansas Medical Society died May 14, aged 92

Campbell, John Roger Urell ⊕ Gilroy, Calif University of California School of Medicine San Francisco 1929 member of the American Academy of General Practice on the staff of the Wheeler Hospital died in the University of California Hospital, San Francisco March 29 aged 55, of heart disease

Canfield, Amon Evart, Toledo, Ohio Starling Ohio Medical College Columbus 1914 member of the Ohio State Medical Association on the staff of the Mercy Hospital served as physician for the New York Central System for 40 years died April 15 aged 66 of coronary thrombosis

Canfield, Dwight Reuben ⊕ Perrysburg, Ohio, Toledo Medical College 1907 for two terms served as mayor and county coroner past-president of the board of education died in Woodville April 22 aged 84 of cerebral thrombosis

Carey, John Leo ⊕ Kingston Pa Regia Universita degli Studi di Padova Facolta di Medicina e Chirurgia Italy, 1935 served during World War II president of Nesbitt Memorial Hospital staff died May 13 aged 56 of cancer of the stomach

Chain, John Nolan ⊕ Eureka, Calif , Medical Department of the University of California, San Francisco 1904, veteran of World War I, died April 14, aged 79 of cerebral hemorrhage

Chamberlin, Louis Henry ⊕ Grand Rapids Mich , Detroit College of Medicine, 1898 veteran of World War I served as chief of staff at St Mary s Hospital, died in Winnetka Ill , May 12 aged 82

Chamberlin, Robert Burns ⊕ Twinsburg Ohio Cleveland Homeopathic Medical College, 1904 also a dentist past-president of the Twinsburg Rotary Club died April 24 aged 75

Chandler, James Ryan, Sr , Daytona Beach Fla Medical College of South Carolina, Charleston, 1924 served on the staff of the Halifax District Hospital died April 8, aged 60

Chapman, Leiland Woodard, Jackson Ala , University of Alabama School of Medicine Mobile, 1911 member of the Medical Association of the State of Alabama, served as county health officer died May 10 aged 72

Chesley, Norman Kelley ⊕ Acme N C Tufts College Medical School Boston 1928, member of the Industrial Medical Association at one time medical director for Socony-Vacuum Oil Company in Paulsboro N J then resigned and accepted a position with Riegel Paper Corporation Carolina division, in Acme at one time vice-president of the medical staff at the Frisbie Memorial Hospital in Rochester N H on the courtesy staff at the James Walker Memorial Hospital in Wilmington died suddenly April 19 aged 53, of coronary thrombosis

Chiasson, Placid Nelson ⊕ Pittsfield, Ill , Bennett Medical College Chicago, 1915 on the staff of the Illini Community Hospital where he died May 12 aged 69, of coronary infarction

Clark, George A , Elwood, Neb John A Creighton Medical College Omaha 1908 died in Holdrege April 30 aged 76 of complications following nephrolithiasis

Clement, Lucian Orville ⊕ Salem Ore University of Minnesota College of Medicine and Surgery Minneapolis 1902 specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology, fellow of the American College of Surgeons on the staff of the Salem General Hospital where he died April 26 aged 80 of a coronary attack

Cleveland, William Hinton, Rocky River Ohio Starling Medical College Columbus 1889, died March 16 aged 89, of senility

Coston, Thomas C , Clifton Texas University of Tennessee Medical Department Nashville, 1898 died Feb 26 aged 84 of coronary occlusion.

Cox, James Alfonso, Oklahoma City Meharry Medical College Nashville Tenn 1907 died recently aged 72 of heart disease and injuries received in a fall

Danforth, Herschel Clark ⊕ Janesville, Wis Detroit College of Medicine and Surgery 1928 member of the Industrial Medical Association died May 20 aged 57

De Forest, Daniel F , South Bend, Ind , Medical College of Indiana Indianapolis 1895 died recently aged 83, of coronary thrombosis

Logan, James Clarke, McKees Rocks Pa Hahnemann Medical College and Hospital, Philadelphia, 1902 University of Pittsburgh School of Medicine Pittsburgh 1909 died in the Ohio Valley General Hospital Feb 3 aged 77 of cerebral hemorrhage

McWilliams, William Milo, Pittsburgh Western Pennsylvania Medical College Pittsburgh 1891 died Feb 22 aged 89 of coronary arteriosclerosis

Miller, Robert Glen, Marydel Md. University of Nebraska College of Medicine Omaha 1910 at one time associated with the Indian Service, died April 26, aged 72 of cerebral hemorrhage hypertension and diabetes mellitus

Roach, Thomas Stith ⊕ Caldwell Texas (licensed in Texas in 1926) member of the Association of Military Surgeons of the United States and the American Association of Railway Surgeons at one time member of the board of health of San Antonio formerly practiced in Caldwell, where he was city and county health officer, died in St Joseph s Hospital, Bryan, Jan 13 aged 68 of a ruptured aneurysm of the abdominal aorta

FOREIGN LETTERS

BRAZIL

Closure of the Bronchial Stump After Pneumonectomy —The use of several techniques for dissecting the pulmonary pedicle with separate treatment of each of its constituents produced a marked reduction of the incidence of fistulization of the bronchial stump after pneumonectomy In spite of these improved techniques, an appreciable number of bronchopleural fistulas still develop, showing that the healing of the bronchial stump requires further investigation Dr Fabio S Goffi and his co-workers in *Revista paulista de medicina* (48 354, 1956) reported a series of experiments to compare, by measuring the tensile strength of the closed bronchial stump, some of the techniques most commonly used The experiments were carried out with 25 adult healthy dogs in whom pneumonectomy was performed on the left side The left bronchus of each dog was carefully dissected and cut between two forceps After the removal of the lung, the bronchus was reamputated at a higher level and a definitive closure was performed The dogs were divided in four groups (1) in seven Overholt's technique of bronchial closure without pleural flap covering was performed, (2) in eight Sweet's technique was used without pleural covering, (3) in five Sweet's technique was used with pleural covering, and (4) in five Sweet's technique was used with a skin graft covering the bronchial stump

After the operations, the animals were well fed and nursed for seven days, then they were killed and autopsy was performed The right pulmonary pedicle was dissected, and the right bronchus was isolated and occluded by means of a strong clamp The trachea, isolated at the neck, was transversely cut, and its distal extremity was tightly tied to one of the branches of a T-tube The other two extremities of the tube were tied, one to a mercury manometer and the other to a cylinder of compressed oxygen When the valve of the cylinder was slowly opened, the mercury column of the manometer began to rise, and it was possible to note the height corresponding to the moment of the beginning of the spilling of air at the bronchial stump and, later, to the moment of its explosive rupture The authors concluded that (1) the mean pressures of spilling were close to those which can be reached during maximal expiratory efforts in normal human adults, (2) there were no significant differences between the techniques of Overholt and Sweet as far as the spilling and disruption pressures were concerned, (3) covering the bronchial stump with a pleural flap is a sound method that gives to the tissue a remarkable tensile strength, and (4) there was no significant difference between the mean pressures of spilling and disruption when Sweet's technique was used, either without pleural covering or with a skin graft covering

Biopsy of the Liver —Dr Luis Caetano Silva and his co-workers in *Revista do Hospital das clinicas da Faculdade de medicina da Universidad de São Paulo* (11 41, 1956) reported a series of 153 biopsies of the liver in 136 patients and compared the results with data obtained through laparotomy on 21 and postmortem examination of 14 The biopsies were performed with the Vim-Silverman needle, and the only inconvenience was pain, which was easily controlled Biopsy of the liver proved to be a positive help to the diagnosis in 66 2% of cases, did not contribute to the diagnosis in 14 7%, did not change the diagnosis in 14 7%, and the material was insufficient in 4 4% In 21 patients subjected to laparotomy, the comparison between the results of biopsy and the findings at operation gave the following results there was complete agreement in diagnosis in 14 cases, laparotomy completed the diagnosis in 2, the diagnosis was made only by laparotomy in 3, laparotomy changed the diagnosis in one, and laparotomy failed to help in the diagnosis in one Of the total from whom a biopsy specimen was obtained, 14 patients died later and autopsies were performed The postmortem examinations confirmed the diagnosis established by the biopsy in five cases, established the diagnosis in three, clarified and completed the diagnosis in four, and changed the diagnosis in one The authors consider biopsy useful for differential diagnosis between medical and surgical jaundice, exclusion of hepatic diseases in liver enlargement, elucidation of liver histology in the presence of abnormal liver function tests, differential diagnosis between extra and intrahepatic venous block, and determination of the course of a liver disease

Complications of Gastric Surgery —In a series of 81 patients who had complications following gastrectomies for gastric and duodenal ulcers (perforated or not), gastric hemorrhage, and postoperative jejunal ulcers, 22 patients died (*Revista paulista med* 47 163, 1955) The most frequent complications of the gastrectomies themselves were leakage of the internal sutures occurring between the third and ninth postoperative day (15 cases), accidental lesions of the biliary tract (5), profuse bleeding of the anastomotic stoma (5), and obstructions of the efferent loop (4) The general complications (common to major abdominal operations) included pulmonary disease (30 cases), wound infections (12), and wound dehiscence occurring between the fifth and tenth postoperative day (11) Most cases of profuse bleeding from the anastomotic stoma were controlled by blood transfusions, of five patients only one required a second operation There were four cases of postoperative obstructions, three due to adherence of the efferent loop Of the 22 patients who died, 10 had gastric carcinoma, 9 had duodenal ulcers, and 3 had gastric ulcers For acute perforated gastroduodenal ulcers, gastrectomy, in selected cases, is the operation of choice In 89 cases (82 of duodenal and 7 of gastric ulcers), there was only one death

Transverse Incisions in Abdominal Surgery —On the basis of a series of 210 consecutive laparotomies and a study of the anatomy and dynamics of the abdominal musculature, Drs Humberto Barreto and Alcides Modesto Leal of Rio de Janeiro concluded that transverse incisions are preferable to vertical incisions, because they give the surgeon a better operative field and result in fewer incisional hernias In their series, in which only transverse incisions were used, only four incisional hernias developed In São Paulo, Dr Eurico Branco Ribeiro has since 1948 used a small transverse incision for gastric resections The rectus abdominalis muscles are everted, and the peritoneum is opened at the right of the hepatic round ligament

Test for Pheochromocytoma —Dr Sergio Mirsky has devised a simple test for the diagnosis of pheochromocytoma (*Arq brasil med* 45 397, 1955) It is based on the fact that in patients with this disease the crisis is associated with a discharge of epinephrine in the blood, which causes the fall in the eosinophil count An eosinophil count is first made after a period of normality of about 16 hours After an attack the patient is kept at bed rest without food for five hours, and the eosinophil count is then repeated In patients with pheochromocytoma, the number of eosinophils in the second count is not more than half that of the first count

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The items in these letters are contributed by regular correspondents in the various foreign countries

CANADA

New Home for Canadian Medical Association—One of the speakers at the official opening of the new Canadian Medical Association House at 150 St George St, Toronto, remarked that most medical societies go through three stages in their development First, the society secretariat exists in the homes automobile glove compartments, and pockets of a few devoted members laboring without any thought for reward Then comes the time when the society can rent an office and hire some clerical help Last comes the day when the society has a home of its own This day came for the Canadian Medical Association on St Patrick s Day, after many years in rented premises For a long time the secretary had his offices in Toronto, while the journal of the association was published in Montreal This had appeared logical in the early days when the journal was the successor of the *Montreal Medical Journal*, but the day for unification of the association s activities under one roof was not far distant after the council of the association decided in 1954 that Toronto should be the headquarters for the journal staff It is now an accomplished fact with two of the Canadian Medical Association s progeny the Canadian Commission for Hospital Accreditation and Trans-Canada Medical Plans, also sharing space in Canadian Medical Association House The senior statesman of organized medicine in Canada, Dr T C Routley had reason to feel proud when he took the chair this year as president of both the Canadian and the British medical associations The present Canadian Medical Association House formerly belonged to the China Inland Mission and has ample space for all activities of the association

Canadian Medical Association and Health Insurance—In a recent editorial in the *Canadian Medical Association Journal* the general secretary of the association seeks to clarify the situation regarding health insurance in Canada. A series of conferences has been held in Ottawa between representatives of the federal and the provincial governments on this subject. The last of these was in January, 1956 when the federal government offered financial aid to provinces seeking to establish a health insurance program An elaborate formula was presented to the provinces based on their fiscal needs and the variations in cost of the anticipated services specified This offer of assistance was conditional on acceptance of the formula by a majority of the provincial governments representing a majority of the people of Canada (and therefore containing at least one of the two most heavily populated provinces Quebec and Ontario) So far only two provinces that are already running some form of government-aided scheme (British Columbia and Saskatchewan) are said to have indicated willingness to proceed but the general belief is that others will line up later The services included in the federal government s offer relate to hospital care insurance covering standard ward care in general hospitals and probably in convalescent hospitals and institutions for the care of those with chronic physical disabilities To be eligible for federal financial assistance any provincial hospital insurance plan must (1) apply to all residents of the province (2) include radiological and laboratory services for hospital patients and later for outpatients as well and (3) not have too severe coinsurance or deterrent clauses Beyond these broad provisos, the federal government does not dictate details, so that it is certain that the individual plans will vary from province to province

In previous pronouncements on health insurance, the Canadian Medical Association has always given first priority to the provision of insurance against costs of hospital care since this usually represents the major burden It has regarded with favor the extension of voluntary plans particularly those nonprofit plans sponsored by physicians and coordinated by Trans-Canada Medical Plans It would seem logical, therefore, to welcome the latest plan for extension of hospital care insurance to all residents of all provinces deciding to take advantage of the federal offer There must be certain misgivings, however First, the medical profession must share with other responsible taxpayers the fear that the costs of such a service will mount steadily Second, the medical profession cannot but be conscious of the pressures and responsibilities involved in arbitrating on hospital admissions and discharges When hospitalization is free the desire to be cared for there rather than at home will naturally grow Third, the abolition of the old public-ward bed will have some effect on both undergraduate and graduate training though not necessarily For instance, at the new University Hospital in Saskatoon every patient on admission is required to state willingness to be used as teaching material

The reason for the insistence of the federal government on including radiological and laboratory services in any insurance scheme, whether the service is provided for inpatients or outpatients is to minimize the admission of patients to the hospital simply for a diagnostic "work-up" This, nevertheless is the area of the scheme that is likely to cause the most difficulty The symbiosis between the x-ray department or laboratory and the hospital is not an obligatory one nor are these services an essential part of hospital care The status of the private x-ray or laboratory service will have to be defined, and the mode of remuneration of the radiologist or pathologist has still to be considered. The huge demand for these ancillary services when they become "free" may swamp specialties that are not too thickly populated It is hardly necessary to emphasize the importance of quality rather than quantity in both radiology and pathology

Canadian Public Health Association and Medical Care—At the past three annual meetings the Canadian Public Health Association has held conferences on problems of medical care The executive committee of the association has now agreed to the formation of a new section on medical care within the organization At the annual meeting in May, this new section held its first meeting in conjunction with the third Canadian Medical Care Conference The objective of the section is to direct consideration to the ways in which medical and health services in Canada may cooperate in study and development of plans suitable for Canadian needs The section is concerned with administrative, economic and sociologic rather than scientific problems in medical care

Sex Deviate Clinic—Last winter there was some agitation in the public press about the disposal of cases involving sex offenders and much public alarm at the alleged prevalence of sex crimes in some metropolitan areas of Canada To Ontario now goes the credit for the establishing the first clinic for the study and treatment of sex offenders In May the clinic known euphemistically as the Forensic Clinic was opened in Toronto under the direction of Dr Peter Thomson, a psychiatrist A psychologist and a social worker are also on the staff and it is expected that the staff will increase when the courts begin to realize the value of referring persons to the clinic for advice The clinic is intended to serve primarily the courts and probation officers requiring advice on persons needing psychiatric examination or treatment, including sex offenders It is expected that later similar clinics will be provided in other cities The services of the Toronto clinic will also be available to rehabilitation officers interested in reclaiming former men and women prisoners The clinic will also function as an instruction center for university students and as a research center in problems of sex deviation and delinquency in general. Eventually the clinic may accept cases referred by private physicians The clinic is affiliated with the University of Toronto

Fluoridation –Last June the city of Brantford, Ontario, completed 10 years of mechanical fluoridation of water supplies The most recent of a series of annual reports on the results (*Canad J Pub Health* 47 149, 1956) confirms the good opinions of fluoridation as a caries-preventing measure expressed elsewhere The actual controlled study began in 1947 when dental decay rates were compared in three neighboring cities Brantford, with a natural low-fluoride water to which fluoride was added at a level of 1 ppm, Sarnia, with a water supply that contains no fluorine, and Stratford, with a water supply that has contained a natural level of 1 6 ppm of fluorine for the last 38 years All dental examinations were made by the same examiner, who now gives figures for decayed, missing, and filled teeth in the three cities These show that children born in Brantford since fluoridation began now exhibit the same degree of resistance to dental caries as those of the corresponding age group in Stratford with its natural high-fluoride water supply, whereas the resistance in Sarnia with its unfluoridated water is much lower In general the figures show that fluoridation at 1 ppm will lower the attack rate of tooth decay among children born subsequent to fluoridation to about one-third that prevailing in communities with no fluoride in the water For every three decayed teeth they would have had, they have only one The reduction in the amount of tooth substance destroyed by decay is even more impressive than the decrease in the number of teeth attacked It is suggested that on a volume basis fluoridation inhibits decay to the extent of 75 to 80% It is probable that, taken in conjunction with restriction of candy between meals and toothbrushing, tooth decay and gum disease could be almost entirely prevented

Canada has one dentist to every three physicians and needs one to every two Use of mass preventive measures could give a means of bridging this gap and lower the cost of health to everyone In spite of this, there is much determined opposition to fluoridation in Canada, and the decision of the Toronto Metro Council to fluoridate extensively in the area around the city, affecting about 650,000 people, has met recently with a setback on a legal technicality

General Practitioners and Hospitals –A committee set up by the College of General Practice of Canada has prepared a statement on general practice departments in hospitals The committee recommends that departments of general practice be established in all general hospitals with an adequate departmental system, including university-affiliated hospitals They believe that the action necessary to start such a department should be taken by the general practitioners of the area concerned The department should not function as a clinical service with admission of patients but fulfill an administrative and educational role The family physician should admit patients to the departments of medicine, surgery, and obstetrics and treat them, if treatment is within his competence, under the rules and regulations of the department concerned The committee further recommends that the department of general practice have the responsibility of organizing, staffing, and conducting any general outpatient service, in which all new patients should first be seen by a member of the department of general practice Stress is laid on the need for a share in educational activities of the hospital and for participation by the general practitioners in the training of residents, interns, and nurses, particularly those interns who wish to go on to general practice Preceptor training of general practitioner members of the staff by specialists is advised for those general physicians desiring to improve their skill in certain fields Other than basic privileges should be granted to those members of the department of general practice whose qualification by training and experience permits their engaging in clinical work in a service These recommendations are in line with the thinking in statements by the Joint Commission on Accreditation of Hospitals and by the Canadian Medical Association

INDIA

Carcinoma of the Larynx with Metastasis in the Heart –Mathur and Bhende reported in the *Journal of Postgraduate Medicine* (April, 1956) the case of a 40-year-old man who had carcinoma of the larynx He died suddenly, and postmortem examination revealed a solitary metastasis in the heart He had been admitted to the hospital because of breathlessness, hoarseness, and dysphagia Laryngoscopy showed the right vocal cord to be fixed and the aryepiglottic fold to be edematous and ulcerated On the third day after admission the patient suddenly became dyspneic and died Postmortem examination revealed the presence of suppurative lymphadenitis of the cervical lymph nodes, but there were no metastases in these nodes There was a diffuse growth in the piriform fossae with patchy ulceration on the surface The aryepiglottic folds showed small nodules Histological examination showed the growth to be a well-differentiated squamous cell carcinoma There were no metastases in any organs except the heart The right auricle had a nodule on the anterior surface An irregular nodule, corresponding in situation to the former, was also seen in the endocardium on opening the auricle Its cut surface was homogeneous, grey-brown with a few dark-brown hemorrhagic spots Histological examination showed it to be a metastasis from the laryngeal growth The myocardium was destroyed in the region of the deposit The pericardium was diffusely infiltrated by tumor cells Involvement of the heart is relatively infrequent, even when there is a widespread dissemination of a malignant tumor The occurrence of a solitary secondary deposit in this organ is rarer still An antemortem diagnosis or cardiac involvement in such cases is difficult, as there are no characteristic symptoms or signs In this case involvement of the heart was not suspected clinically

Prefrontal Leukotomy and Gastric Acidity – Dharkar and Balkrishna Rao have studied changes in gastric acidity following prefrontal leukotomy (*Indian Journal of Surgery*, April, 1956) Cortical activity has been known to influence motor and secretory activity of the stomach Areas exerting this influence have been located in the frontal lobe The frontal cortex has been shown to have a marked influence on the motor activity of the gastrointestinal tract, but little was known regarding its effect on gastrointestinal secretion Since it seemed reasonable to assume that nervous structures governing gastric secretory activity are localized in the same cerebral regions as those governing gastric motor activity, and as a large number of patients with gastric and duodenal ulcers have unresolved emotional problems, this work was deemed justifiable Leukotomy was performed on 23 patients suffering from mental diseases or intractable pain Fractional test meal investigation was done before and after the operation, using 7% alcohol as the test meal Acidity tended to fall up to three weeks after operation, then tended to rise, the rise being maintained for up to 18 months Two years later, the level returned to the preoperative level Changes in acidity had no relation to either the clinical improvement or the mental state of the patient

India's Proposals Before the World Health Assembly –The government of India proposed to the World Health Assembly at its ninth session that target dates be fixed for starting coordinated wide-based programs of malaria control leading to world-wide eradication of the disease India's malaria problem is great and although some areas have been freed from the infection, others remain highly malarious The danger of reinfection from within the country or from abroad is great in areas that have been cleared For this reason India asks the World Health Organization to fix target dates for the start and completion of coordinated eradication programs for all countries in Southeast Asia India further requested WHO to call together an expert committee on heart diseases WHO was asked to formulate uniform qualifying standards for physicians on an international basis

Treatment of Clubfoot—Grewal and Mohinderpal reported a series of 476 consecutive cases of congenital talipes equinovarus (*Indian Medical Record,* February 1956) In this series 77% were boys The deformity was bilateral in 54 4%, and when unilateral the right side was affected more frequently than the left A familial tendency was observed in 5 4% Better results were obtained when the manipulative treatment was started early, preferably within six weeks of birth In the children who reported for checkups the condition in 14 5% of those treated had relapsed 70% of the relapses occurred in children in whom the treatment was started after the age of 6 weeks Children reporting for treatment after the age of one year were not much benefited by the manipulative treatment and required operative procedures When clubfoot was associated with other congenital anomalies, good results were not obtained due to deficiency in the bones of the feet and soft tissues If spina bifida was also present forcible manipulation and tight plaster often did more harm than good

Skimmed Milk Powder—A new model dairy recently opened at Anand by the Prime Minister is the first in the world to manufacture on a commercial scale skimmed milk powder from buffalo milk The plant processes daily 300 000 lb of liquid milk, 10 000 lb of butter 12,500 lb of milk powder and 1,200 lb of casein Later the plant will also produce sterilized cream, baby food and lactose

PERU

New Schools of Medicine—Two new schools of medicine, one in Arequipa and one in Trujillo will open soon The government has appropriated nearly $250 000 to expedite this action This will relieve overcrowding in the school of medicine in Lima It is hoped that the medical school of the University of San Agustin in Arequipa, which was to have opened in 1958 will be able to open in August of this year Representatives of the Rockefeller Foundation have offered to supply valuable technical equipment and to support a number of fellowships in the United States to prepare Peruvians as teachers in medicine and basic sciences

Increased Payment to Physicians—In April the National Fund of Social Insurance for workmen increased the payment to all physicians working for the fund. A physician whose monthly earnings with the fund were $100 or more received an increase of 15% and those who earned less an increase of 20% whether or not they have other income Last year the medical staff of the Worker s Hospital of Lima which includes more than 100 physicians demanded an increase of 30 to 50% in the salaries of all the physicians working for the Social Insurance Fund This was necessitated by the general increase in the cost of living The increase granted is a poor compromise

SWEDEN

Control of Silicosis—Early in the 1930 s, silicosis was included among the occupational diseases qualifying its victims for legal compensation This measure helped to concentrate attention on a disease about whose frequency little had hitherto been known. Since 1931 about 2,000 cases have been reported, and at the end of 1953 about 1,400 patients were suffering with this disease A survey of the subject by Dr A Ahlmark and his co-workers in *Svenska lakartidningen* for April 13 includes all the cases of radiologically diagnosed silicosis since 1931 They investigated the causes of death in the fatal cases, repeated the radiological examination of the survivors and classified the patients as to how the disease was incurred (in iron foundries mines, or the porcelain or quartz industries) The ratio of severe to slight silicosis varies greatly in different industries Thus among iron workers most of the patients suffered from first-stage silicosis whereas most of the patients in the quartz industries suffered from third-stage silicosis The expectation of life for a quartz worker with silicosis was about 5 years, whereas that of a porcelain worker with this disease was about 11 years This finding indicates that a radiologist who is confronted by similar roentgenograms must modify his prognosis according to whether the patient does or does not come from a "bad" industry Experience with the awarding of compensation for industrial silicosis has shown how difficult it is to gauge the degree of disability for a young man may have radiologically severe silicosis without much disability if his capacity to adjust himself to it is relatively great. On the other hand, the elderly person with silicosis may experience a marked reduction of working capacity, although the radiological evidence of his disease is not in itself impressive As this difficulty has greatly impaired the uniformity of assessments by medical examiners lacking sufficient experience, since 1934 the rule has been adopted of submitting doubtful cases to a central medical authority Among the above-mentioned 1,400 workers registered as suffering from silicosis at the end of 1953 were 150 whose degree of invalidism had been put at 50 to 100% and another 350 whose invalidism was put at 10 to 50%

Tularemia—Most cases of tularemia come from fairly limited areas The latest study of the subject comes from a hospital in Uppsala in which 47 such patients were treated in the period 1938 to 1954 Reporting on them in *Nordisk medicin* for April 26 Dr Eyvinn Tveteraas points out that in 15 of these patients tularemia had already been diagnosed on admission to hospital and 12 had been admitted with this diagnosis as a possibility In the remaining patients alternative diagnoses had varied greatly and had included lymphadenitis tuberculosis, septicemia polyarthritis, rheumatic fever, and even cancer Some of the credit for the correct diagnosis in so large a proportion of the patients must go to the fact that nearly all the patients came from districts in which tularemia was well known The agglutination reaction proved a most useful aid to the diagnosis and it was usually positive within 9 to 14 days of the onset of the first symptoms There were, however, two patients in whom this test took three weeks in which to become positive

None of the 47 patients had been known to have been in contact with any rodent before they fell ill In 32 patients the infection was traced to the sting of a mosquito or some other insect, and there were 15 in whom the source of the infection remained obscure The frequency with which the primary lesion was in some part of the body not protected by clothing emphasized the importance of the part played by insects The incubation period ranged from one to seven days in the 16 patients in whom reliable data were available on the subject. In 43 patients the disease was of the ulceroglandular type In two it took the glandular form in one the typhoid form and in one the pulmonary form The disease evidently runs a milder course in Europe than in America and as yet no fatal case has been observed in Sweden. Apparently the disease is more serious when conveyed directly by rodents than when insects are responsible for its transmission Treatment with sulfonamides and penicillin has largely been replaced by treatment with streptomycin and chlortetracycline

Erythroblastosis—The interest taken in the infants born to Rh-immunized women is well illustrated in four papers on the subject published in *Svenska läkartidningen* for March 29 At the Caroline Hospital in Stockholm the creation of the Rhesus Laboratory has provided for the effective centralization of patients with disorders involving the Rh factor When Rh-immunized pregnant women were first treated at this hospital, the mortality rate among infants with erythroblastosis was about 50% It fell to between 20 and 30% with the introduction of transfusions with Rh-negative blood. With the adoption of the system of exchange transfusions since 1946, there has been a still further fall, and the mortality was only 3% for the 308 cases treated at the Caroline Hospital in the period 1952 to 1955. These figures concern only the immediate results. The ultimate future of infants with erythroblastosis is still obscure. One of the errors that needs correcting is the wholesale and irresponsible administration of blood by intramuscular injections on the false assumption that such injections can be given with greater impunity than intravenous injections. The administration of Rh-positive blood by intramuscular injection to Rh-negative persons has a strong isoimmunizing effect.

SWITZERLAND

Accidents in Childhood.—Accidents have become an important cause of death in the age group 1-19, according to WHO (*Epidemiological and Vital Statistics Report*, vol. 9, no. 1, 1956). In 1953, in the 21 countries dealt with in the report, 8,415 boys between 5 and 19 years of age died from infectious and parasitic diseases, compared with 13,414 in the same age group killed in accidents (5,948 of them by drowning). Up to 96.4% of infants who die accidentally in their first year of life are victims of suffocation (44.8% in their cradle and 22.1% from choking with food or other objects). The most dangerous accidents, apart from road accidents, are falls, which are responsible in some countries for 67% of all accidental deaths, drowning, which may account in some countries for 33%, fire and explosions, which may cause up to 25%, and poisoning, which in some places accounts for nearly 20%. Children between 1 and 4 years old are the main victims of poisoning and of burns, the age group 15-40 is most liable to machine accidents, and that of 15-25 to accidents due to firearms. Burns affect mostly children between 1 and 10 years old. In 1953, accidents of all kinds were responsible for between 2.4 and 7% of all reported deaths. Accidents caused from 3 to 9% of all male and 1.4 to 4.8% of all female deaths. Traffic accidents cause between 0.4 and 3% of all deaths, while accidents from other causes are responsible for 1.6 to 4.5%. Most accidents to children can be prevented. The better the knowledge about accidents, the easier they are to prevent. Reliable statistics on fatal and nonfatal accidents can be important tools in preventive work. Such statistics help to arouse interest, point the way to intelligent action, and provide a measure of results achieved. That accidents can be prevented is indicated by the low rates achieved in countries where accident education has been actively pursued and appropriate legislation applied. Statistics have taught us not to let children sit in the front seat next to the driver. Experience has shown that the seat belt for children will greatly reduce injuries in case of a collision.

World Health Assembly.—At the ninth World Health Assembly in May in Geneva, Morocco, Tunisia, and Sudan were admitted to full membership, and the Gold Coast, Nigeria, and Sierra Leone became associate members. This brings the total membership of the World Health Organization to 88. The assembly adopted a resolution to facilitate renewed participation of inactive members (Union of Soviet Socialist Republics, Ukrainian Soviet Socialist Republic, Byelorussian Soviet Socialist Republic, Bulgaria, Rumania, Albania, Czechoslovakia, Hungary, and Poland), some of whom have expressed the wish to resume their collaboration. This resolution provided that financial contributions due from inactive members should be paid in full for years or part-years during which the countries had been active, while only a token payment of 5% of regular contributions was asked for inactive years.

In his report on the work of WHO in 1955 (The Work of WHO, 1955. Annual Report of the Director-General to the World Health Assembly and to the United Nations, Official Records of the World Health Organization, no. 67, Geneva, Switzerland, World Health Organization, March, 1956), the Director-General, Dr. Candau, said that no effective health program can be undertaken without first obtaining precise and reliable information on the nature and extent of the problems involved. In Europe and North America increasing attention is being given to occupational health, cardiovascular diseases, cancer, and rheumatism, but in the other regions, which contain about 80% of the world's population, the fight against communicable diseases still has a high priority. In this field, the most vital and the most urgent problem is the need to strike at the malaria vectors before they are able to develop resistance to insecticides. In practically all regions the improvement of environmental sanitation and the education and training of all types of personnel are the two essential steps toward raising the health levels of the population. WHO is giving extensive aid to national health administrations, anxious to correct the shortages of health personnel that continue to be a major deterrent to progress throughout the world. The WHO fellowship program has made more than 5,000 awards. The same purpose is being served by the assistance WHO gives to teaching institutions, as well as by the training courses and conferences it sponsors. The nursing and midwifery education projects are in effect in many countries throughout the world.

The world-wide services rendered by WHO in such fields as epidemiological intelligence, statistics, and standardization of biological products will undoubtedly remain for a long time outstanding examples of the benefits member states can derive from international organizations and could scarcely obtain without them. Particular attention is given to the peaceful uses of atomic energy. The WHO program in this field includes training of public health personnel, development of standards, study of problems related to somatic and genetic action of radiation, and appraising methods of radioactive waste disposal.

TURKEY

Hydronephrosis.—In the *Bulletin of Ankara University Medical Faculty* (vol. 5, no. 1-2), Prof. Kemal Serin reported on 107 patients (78 men and 29 women) with hydronephrosis. In 50 men and 16 women the hydronephrosis was the result of renal and vesical calculi. Most of the patients were 20 to 32 years old. In 46 men and in 12 women the hydronephrosis had occurred on the right side, and in 29 men and in 14 women on the left. Infection was observed in 52 men and in 23 women, no infection in 18 men and in 5 women, and mild aseptic pyuria in 8 men and one woman. In none of these patients was there any genitourinary tuberculosis. More than 75% of the infections were with Escherichia coli. Operation was performed on 65 patients: nephrectomy on 37 men and 14 women, pyelotomy on 6 men and 4 women, ureterolithotomy on 3 men, and arterial resection on one patient.

UNITED KINGDOM

Hormones and Human Fertility.—Clearly defined endocrine causes of infertility are relatively uncommon, according to G. I. M. Swyer in the *Practitioner* (176:632, 1956). In the absence of endocrine fertility factors, the empirical administration of hormones has little or no effect on the promotion of fertility and can only be condemned. So far as defective spermatogenesis is concerned, testosterone therapy may give gratifying results in hypogonadotropic eunuchoid men, but in noneunuchoid men the results are disappointing. For defective spermatogenesis large doses of testosterone may be given to produce temporary testicular suppression, to be followed by a rebound on cessation of treatment, or small doses may be given for an expected direct stimulatory action on spermatogenesis. Swyer's experience with the former technique is that a rebound does occur, but in less than 20% of patients. Implantation of two or three 100-mg. pellets of testosterone subcutaneously may be of value in patients with moderate depression of sperm density (15 to 20 million per milliliter) or with poor motility with fair or good density

A diagnosis of genital hypoplasia in women is made too often and on inadequate grounds Even if present unless accompanied by other evidence of ovarian deficiency it is usually due to failure of the target organ and is therefore not amenable to treatment In some patients however the administration of estrogens in moderately large doses and in interrupted courses sometimes leads to growth of the uterus which may increase the chances of conception The practice of giving small doses of estrogen during the first half of the menstrual cycle to stimulate the ovulatory flow of cervical mucus does control this infertility factor in some patients Unfortunately in some the dose of estrogen required to improve the cervical mucous flow is sufficiently large to inhibit or postpone ovulation In such cases better results may be obtained by replacing the usual 10 to 14-day course by a shorter one giving 2 mg of diethylstilbestrol or 0 1 mg of ethinyl estradiol daily for the four days preceding the expected day of ovulation The possibility of intracervical injections of estradiol benzoate just before the time of ovulation is worth a trial in those patients in whom oral therapy inhibits ovulation

Endometrial dysfunction with consequent failure of implantation is not a common or important infertility factor When however repeated premenstrual biopsy specimens show a real deficiency of progestational development it is reasonable to give progesterone in some form during the second half of the cycle Hormonal deficiency is a relatively uncommon cause of abortion No enthusiasm is expressed for the prophylactic antenatal use of diethylstilbestrol Swyer himself was unable to find any difference between patients given placebos and patients treated with this drug It is doubtful if significant hypothyroidism is any more prevalent among persons complaining of infertility than among the rest of the population and the indiscriminate administration of thyroid hormone in any dosage is to be deplored

Protecting the Nurse s Back —Of recent years there has been an increased incidence of herniated intervertebral disk among nurses As home nurses are particularly vulnerable to this occupational hazard since they so often have to lift helpless bedridden patients without any assistance the health officer of Nottingham introduced courses of instruction in safe weight lifting for home nurses The methods essentially the substitution of use of the strong thigh muscles for those of the back when lifting a patient were easily learned by the nurses who were much impressed by the ease with which they could carry out maneuvers previously difficult or impossible

Tuberculin Reactions —Routine tuberculin testing followed by BCG vaccination if indicated has been introduced for all recruits to the Glasgow police force as a result of the findings in an investigation carried out by Imrie and Gemmill (*Scottish M J* 1 186 1956) In a series of 1 291 members of the force aged 20 to 57 years who volunteered for the investigation 13 4% were found to have negative tuberculin reactions Although the highest proportion of negative reactors (24 5%) was found in the 20-24 age group there was an appreciable proportion in other age groups (12 7% in the 30 34 group and 13 4% in the 50-54 group)

Unemployment Among Physicians —Commenting on the fact that 35 physicians were drawing unemployment benefits, Miss Pat Hornsby-Smith Parliamentary Secretary Ministry of Health said that some of these physicians suffered from severe physical disability Most of those recently placed on the dole remained in this status for less than 13 weeks and only two for more than 26 A small number came into the National Health Service through vacancies advertised by local executive councils The number of physicians in practice is certainly not decreasing Last year 259 practices became vacant through death or resignation, 177 successors were appointed and there were 17 amalgamations with other small practices The remaining 125 practices were dispersed of these 40 listed no patients 51 had under 300 and 14 had more than 700 The latter were dispersed because of such factors as location in a rehousing area or dwindling of the practice due to movement of population

In some spheres there is still a shortage There are now 3 000 more physicians employed in the hospital service than the 13 500 in 1949 and the number is increasing In many areas it is difficult to obtain sufficient junior staff members There are still many vacancies in some areas There are specialties where more staff is needed The problem is not one of general unemployment but primarily one of distribution particularly in general practice For the 84 advertised vacancies in 1955 the average number of applicants was 43 many of whom were already in practice and seeking a change Competition for vacancies is much higher in the south of England than the north where there are often as few as 10 applicants for a vacancy Because of the possibility of future oversupply of physicians the Willink Committee was set up to make recommendations on the future needs of the service and the expansion of certain specialties such as mental health This would no doubt have a bearing on the choice of specialties and on whether students would aim to be consultants or go into general practice

Medical Practices Advisory Bureau —The medical director of the Medical Practices Advisory Bureau in his annual report stated that in 1955, 32 vacancies overseas were filled by the bureau Inquiries were received from all parts of the world mostly from the Dominions and British territories overseas and there were 376 physicians on the books of the bureau interested in practices or appointments abroad Roughly half the vacancies were in general practice The remainder were appointments in industrial or governmental concerns It is often difficult to fill temporary appointments in spite of the relatively high salaries and attractive terms offered In other times these appointments seem to have been more attractive in that they afforded an opportunity for a physician to save money thus acquiring capital with which to establish himself in general practice Nowadays there is a reluctance to leave this country for two or three years for fear of losing one s place in the queue

Training Administrators —The Minister of Health and the Secretary of State for Scotland have approved a national scheme for the recruiting and training of administrative and clerical staff members employed by National Health Service hospital authorities and executive councils On the hospital side only, special training posts in hospital administration are to be offered annually —16 this year—to attract university graduates and other professionally qualified men and women Trainees from inside or outside the service will be selected to fill special training posts for a course of up to three years They will be given practical experience in all branches of hospital administration with different hospital authorities and courses of instruction at the Hospital Administrative Staff College of the King Edward s Hospital Fund for London or the University of Manchester The trainees will normally be under 30 years of age

Suicide with Insulin —Another case of suicide with insulin has been recorded by J F Burdon in *Research Letter* no 11 of the College of General Practitioners The victim was a well-nourished male diabetic aged 31 years who had a history of attacks of depression His diabetes was normally controlled by 15 units of protamine zinc insulin and 10 units of soluble insulin He was admitted to hospital one hour after having been found unconscious Circumstantial evidence pointed to the fatal dose of insulin having been taken four hours before he was discovered He had taken 800 units of protamine zinc insulin and 1,200 units of soluble insulin He died of bronchopneumonia nine days after admission without regaining consciousness

CORRESPONDENCE

EXTENSIVE LOW-COST REFERENCE LIBRARY FOR PHYSICIANS

To the Editor —The purpose of this letter is to suggest a plan for an extensive medical reference library that any physician could own at low cost to himself This large library would occupy little storage space, be convenient to use, and be exhaustive in its scope If this plan were adopted there would be little need for authors to distribute reprints of published articles In 1944, Fremont Rider, a librarian, published a book, "The Scholar and the Future of the Research Library A Problem and Its Solution" (New York, Hadham Press), in which he advanced a new concept in library science—the microcard For those not familiar with the term, the microcard is a paper card 3 by 5 in in size, of the kind used in the card catalogues of most libraries These cards, rather than just listing the books and periodicals available in a library, are the library On one side of each 3 by 5 in card 60 standard-sized pages of a book or periodical are reproduced from the original source by a method of photographic reproduction that has been developed at a cost of nearly a quarter of a million dollars This reproduction is an exact photograph of the original article, with all of the illustrations and text reproduced without any change except in size

Since 100 of these cards are only 1 in thick, a physician with an ordinary 12-in file cabinet on his desk for 3 by 5 in cards could have over 70,000 pages of printed material in each drawer A few drawers of cards could contain a large library The cards are read by slipping them into a microcard reader, which reproduces each page to slightly larger than its original size on the surface of its glass viewing area These readers are manufactured by many commercial concerns and are only slightly larger than a typewriter in size They can be used without reducing the illumination in a room The cards are labeled in print of ordinary size so they can readily be selected for use from the file drawer Microcards are more durable, less expensive, and much easier to use than microfilm The back of any card can be used to write abstracts or to index data Technical details of microcard production can be obtained from the Microcard Foundation in La Cross, Wis

Extensive use has been made of microcards, but, to the writer's surprise, little use has been made of them in medicine Thousands of publications have already been made on microcards in the chemical literature and in many other specialties The *Congressional Record* and many large collections of legal books are on these cards The United States Office of Naval Research uses this medium for dissemination of its voluminous reports During the last few years, the Atomic Energy Commission has used microcards to distribute its technical reports Many industries have had their records placed on microcards, thereby reducing whole rooms of files to a few small drawers By this method the patients' charts of medical centers or teaching hospitals could be reproduced, with each chart occupying a card or a part of it By using a filing machine, those cards of interest on any particular problem could rapidly be selected Since the reproduction of additional cards is little more expensive than one card, each department in a medical school or hospital could have a complete file of all patients' charts for its own use

While certain university presses and other organizations interested in methods of photoduplication have prepared medical journals by this method, their work has been very limited and, therefore, costly, because of the few users of the microcards It is proposed that, if sufficient physicians became interested in a microcard library, current medical journals could be reproduced in large quantities and the average medical periodical could be obtained for less than one dollar a year

This would not interfere with the present income of publishers but would supplement their current business Individuals would still subscribe to journals in which they were particularly interested At the end of a year, for less than the cost of binding or storage of a medical journal, they could purchase it on microcards Periodicals that a physician would not now purchase but would still like for reference purposes in his library he could purchase just on microcards Many periodicals that now have a small circulation would undoubtedly have a definite increase in their income if they were available at small cost on microcards Journals would no longer need abstract sections if physicians could easily and economically obtain as many periodicals as they desired in compact microcard forms It is much more simple to learn and remember a discussion after seeing it on a microcard with all of the pictures, graphs, and variations seen in the original article than after just looking through the lists of review abstracts that many periodicals contain In addition, the microcard would contain the entire text, thereby being much superior for reference purposes than abstracts

Such a plan could be successful if a very large number of persons became interested, as the cost of the microcard production would be only a few cents a card if there were many subscribers to such a service If large educational and philanthropic foundations could be induced to give their support, they might do more ultimate good by helping to subsidize a complete reference library for all interested physicians than by concentrating their funds for research on a single disease entity as many do today Possibly, pharmaceutical manufacturers could become involved in such a project by helping distribute microcards of complete journals Probably few physicians would object to some advertisement on the back blank side of the card Satisfactory copyright agreements could be arranged with the publishers of medical periodicals as has been done in other fields where microcards are extensively used If such a project were developed on a large scale it would help solve the current difficulties regarding reprints of published articles If whole journals could be obtained or microcards at little cost, many persons who now write for reprints would rather subscribe to the whole journal in microcard form The cards could be filed in any order the owner would want, and the whole journal would occupy less space than the present reprints Consequently, authors of articles would not have to bear the present cost of distributing reprints in large quantities

It should be reemphasized that the method proposed in this letter would not detract from the present income of periodical publishers but would increase it Physicians would still subscribe to journals in which they were particularly interested, as they do today These they would read and then discard, thereby having no cost for binding or storage In addition, the microcard publishers could mail to each subscriber a 3 by 5 in card in an ordinary letter envelope, which would contain the whole journal on one side of the card Individuals could also subscribe to other journals that they would not ordinarily purchase because of the cost or lack of storage space only in the microcard form These would only cost a few cents a card to produce if made on a large scale Any profit made would be in addition to the present income of these journals It would be necessary for the major periodical publishers to cooperate to make the plan proposed in this letter a success It is not likely that many physicians would be interested in purchasing a microcard reader unless most major periodicals could be obtained in this form If this plan should get wide enough support, any interested group or individual could have a small file on his desk with complete copies of 50 or more current medical periodicals for immediate reference.

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ATHLETICS IN SCHOOLS

To the Editor —Physicians are deeply interested in modern methods of conducting rigorous combative sports with maximum safety for participants However, it is questionable whether the article by Novich, "A Physician Looks at Athletics" *(J A M A*

161 573 [June 16] 1956) offers a helpful approach to existing problems The writer implies that there is some sort of a tug of war between coaches bent on misusing youngsters and team physicians striving valiantly to protect them At Weequahic High School (Newark, N J) where Dr Novich is the team physician the sports program is directed by Charlie Schneider a prototype of the scholarly, dedicated physical educator who has for decades guided and fussed over his charges with the care of a mother There are undoubtedly isolated instances of brutal misuse of youngsters by morons masquerading as coaches, but the great mass of our physical educators are profoundly sincere conscientious, ethical men who would no more think of harming your child than they would their own

Dr Novich only casually alludes to trainers The modern trainer is a college graduate often with a master of science degree and not infrequently with a doctor of philosophy These men are thoroughly versed in conditioning selection and care of equipment, bandaging dieting psychology physical therapy, and first aid of common athletic injuries During their undergraduate and postgraduate years they serve as assistant trainers For example Martin Lacey recently selected to serve as athletic trainer for the University of North Carolina (Dr Novich s alma mater), toiled for six years as assistant trainer at the University of Maryland The modern trainer thus possesses specialized technical knowledge that makes him as invaluable an aid to the physician as is the nurse, the laboratory technician or the physical therapist On June 19 and 20 I was one of a panel of physicians lecturing at the annual trainers convention in Boston where over 200 trainers from every part of the United States spent some of their meager income to learn what is new and useful in their specialty The physician who comes in contact with this splendid body of men is left with a profound appreciation of their indispensability in caring for those participating in strenuous sports

Dr Novich contends that conditioning should be guided by the team physician In over 45 years of intensive contact with athletic activities I can recall only a handful of physicians qualified to undertake this task and these men were football coaches (Wilce Spears and Stevens) Why not leave this vital task to the graduate physical educator the coach the trainer—the specialists who have prepared themselves for this responsibility? Similarly Dr Novich s contention that the planning and the selection of athletic equipment should be assumed by the team physician is equally untenable Manufacturers such as Wilson Spalding MacGregor and Rawlings spend millions of dollars in intensive research aimed at enhancement of the protective features of equipment The coaches the trainers the equipment managers all add their know-how and experience to the task Why should a physician meddle in this complex and specialized problem? Only the physician is equipped to deal with a player who has been hurt First aid for boxing and football injuries should be given only by the doctor in attendance Surely Dr Novich does not mean that a physician is to be summoned for every little scratch or bruise That is not the way we manage our minor emergencies in hospitals or during war The present approach is much more sound the coach or the trainer carefully and thoroughly versed in basic first aid evaluates the injury and if there is any possibility of it being at all serious promptly refers the case to the physician

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THE EVILS OF SERVICE BENEFITS

To the Editor —The principle of service benefits has now been operative for a considerable period of time, sufficiently long for some appraisal as to its effects on the general public and on the medical profession at large My understanding is that the appeal to the profession for service benefits was made on two grounds one to help the indigent receive medical care by a physician of their choice and two to enhance the number of patients visiting private doctors by diminishing the need of clinic care Thus the appeal was made on a humanitarian basis and at the same time on an economic basis Physicians by and large, are blessed with a spirit of humanitarianism and many members of the profession heeded the call and agreed to render paid-in-full medical care for low-income families and individuals Many other physicians honored service benefits as payment in full without binding themselves by a written contract and continue to do so today Others felt that their liberties were infringed upon and reserved the right to individually establish their fees They felt that their fees concerned the patient and the physician and were no concern whatever of any third party, regardless of what organized medicine might say of the general philosophy of the introduction of a third party through the medium of such plans as Blue Shield, the Doctors Plan

This last group of physicians rested their case on the traditional rights long enjoyed in the United States the fundamental right of the freedom of contract They defended their humanitarianism none the less To them humanitarianism was to be practiced on an individual basis, not in some collective scheme with its attendant evils Consideration benevolence and morality find their wellsprings in the individual heart and mind and are not to be achieved and cannot be achieved, by legislation or by any coercive means These physicians were individualists in the finest sense of the word and were wary of collectivistic philosophies which are rampant in our world today They were interested in and respectful of the social good" They differed in the implementation of these goals Collective force to achieve social gains has a sad history in the world and must inevitably end in slavery The principle of service benefits then, initially motivated by a humanitarian spirit with human nature being what it is and not what it ought to be could deteriorate into a form of slavery for the medical profession

Service benefits promised medical care for less than the free-market rate Everyone is interested in bargain rates and many groups immediately set out to benefit by this arrangement, which in its inception was provided specifically for the indigent In this semantic age it was a simple matter to redefine the boundaries of indigence Income levels eligible for service benefits were raised with the acquiescence of medical organizations They were subsequently raised again so that in some states service benefits were being contracted for income levels as high as $6 000 to $7 000 At this level a change of philosophy was effected higher income groups were to be made eligible for service benefits because of competitive private insurance programs Service benefits in general still were lower than the fees in the free market

The public at large liked this idea Why not? Everyone likes to pay less for needed goods and services They were becoming oriented to the idea of a fixed fee for medical services regardless of income What was desirable would become a right and then a demand Organized labor proclaimed its aim to be paid-in full medical care insurance (that is service benefits) for all workers Service benefits then were becoming an ever-tightening vice constricting the freedom and liberties of the medical profession What was initiated and motivated by a humanitarian spirit could become humanitarianism with a guillotine for the individual doctor with his own neck as the casualty

Doctors were being urged to become participating physicians This was the plan they were told that would forestall socialized medicine This was their plan Thirty-four of the 50 Blue Shield plans today penalize the nonparticipating physician in the following manner (1) by not paying him at all (2) by paying him only for emergency service (3) by paying him a reduced rate and (4) by paying subscribers directly The time could conceivably arrive when a nonparticipating doctor for economic survival would submit to rendering medical care under conditions alien to his rights as a physician and citizen The accomplishment of a social good" for a segment of the population at the expense of another segment is not a good at all It is immoral Must morality be sacrificed for social gains? Eleven states boast Blue Shield plans that have indemnity plans only I suspect that the physicians in these states were alert to the inherent dangers of service benefits from the beginning

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MEDICAL PRACTICE IN RUSSIA

Following is a translation of a letter that appeared in a recent issue of the Russian newspaper Literaturnaya Gazeta (Literary Gazette), *May 5, 1956 The letter has been translated for publication in* THE JOURNAL *for whatever interest it may contain for physicians who are interested in studying the effects of government control on medical practice* —ED

An article entitled “Hours and Minutes of a Doctor” was printed in the newspaper *Literaturnaya Gazeta* almost three years ago With chronometric exactness, this article ticked off the normal working day of a doctor-therapeutist at one of the polyclinics in the city of Zaporozhe It showed convincingly the manifest need for reducing medical red tape

Many people who read the Hours and Minutes article heaved a sigh of relief “At last!” they exclaimed They hoped and waited for the USSR Ministry of Health to review and simplify documentation and remove a good half of the paper mountain from the doctor's desk The article created quite a stir But today, tens of thousands of doctors still waste great amounts of time in the same old way filling out every conceivable type of résume, journal, paper, record, and card Just as was the case three years ago, the largest part of the 10 minutes allocated as the norm for a patient's visit is consumed in writing

It is a burdensome task for the doctor And the patient? How do you think he feels when he walks into the physician's office with his ailments and sees that the doctor's attention is riveted not to the person but to the papers? Questions are asked abruptly At times, the patient's answers reach the doctor's papers but not his consciousness Listening to the complaints with one ear, and with his head bent over his papers, always writing, the doctor sometimes does not even look at his patient Detailed descriptions of symptoms, of course, interfere with the paper work The doctor's gestures, attitude and tone all serve to hurry the patient It is always “faster, faster, get to the point quicker! Be briefer!” Up goes the stethoscope to the doctor's ears “Breathe! Deeper! Cough!’ Then the doctor's hand is again drawn to his pen “Next patient! ’

As Mr Next” enters and undresses, the doctor finishes writing the history of the departing patient's illness, fills in the appropriate column in his journal, makes an entry on a dispensary card, and jots down a summary of the visit And if the patient takes too long with his complaints? If he begins to ask the doctor questions about his illness? Then not 10 but 20 minutes are spent on the patient Five or six such unforeseen incidents occur each day The more frequent these prolonged visits are, the more the doctor's haste, impatience, and nervousness increase Where is there time to think about the patient?

Late at night the doctor returns home, barely dragging his weary limbs, and starts to write what he had not been able to put down during the day while he was with his patients

About three years have passed since publication of the article Hours and Minutes of a Doctor” Recently another article appeared, this time in the newspaper *Medical Worker* Titled “The Value of Time,” it took up the same urgent theme the squandering of doctors' time and energies in writing Again medical personnel saw some dim hope for emancipation from paperwork

But with his tongue literally hanging out in strain and haste, the doctor still must write, write, write As for the patient, he is not so much treated as “officially processed ”

Who needs all these tons of monotonously faceless documents? Where do they go? Who reads them? Could it be that cadres of Soviet doctors are being trained for paper creativeness? Which is more important to “process officially” one history of illness with all the appropriate paper attachments thereto or to use the same time to examine 10 live people who are waiting for the doctor's attention, treatment, and encouraging, healing words, which the ill sometimes need more than any medicine?

Under the present system, consideration and concern for the sick patient sink into the background The very process of medical thought is bureaucratized The doctor-thinker is transformed into the doctor-bureaucrat

Both newspaper articles show by logic and fact the necessity for radical change in our method of administering to the sick But, although the articles were read with satisfaction by doctors and nondoctors, no real help in remedying the situation has been given What is the matter? Why does the USSR Ministry of Health continue to ignore the hard facts and circumstances set forth in these articles? Why did the newspaper editors sit back, their minds at rest, once the critical articles had been printed?

A doctor's work is as complex as it is honorable It demands conditions permitting maximum exertion of the physician's mental powers In each individual case, medical thought must be creatively free and concentrated on only one thing—the ill person To do this, it is necessary, above all, to have the opportunity to work calmly and without haste and to think about the patient

The time has long since arrived for the Ministry of Health to present Soviet doctors with this opportunity

Doctor Ye Kremensky
Odessa

MEDICAL FILM REVIEWS

Pitfalls in the Management of Refractory Heart Failure 16 mm, color, sound, showing time 33 minutes Prepared by the Georgetown University Medical Center in collaboration with the American College of Physicians Produced in 1955 and procurable on rental ($25) or purchase ($395) from Medical Film Guild Ltd, 506 W 57th St., New York 19

This is an orientative film, but the comprehensive treatment of the subject has resulted in a film complicated by an overabundance of clinical and laboratory techniques, so that its usefulness is thereby limited The pitfalls outlined are (1) overdigitalization or underdigitalization, (2) inadequate salt restriction, (3) errors in diagnosis, (4) abuse of mercurials, and (5) electrolytic imbalance These are discussed accurately and authoritatively, with several cases utilized as examples The teaching value of this film would have been infinitely enhanced by careful case selection and clinical demonstration before and after therapy The electrolytic consideration renders the film good for purposes of review, but it decidedly limits its audience Camerawise, the use of split-screen technique is interesting and effective The dramatic opening sequence is overdone and has a Hollywood touch Many of the illustrations could have advisedly been omitted and actual electrocardiograms substituted for meaningless ones Undoubtedly through an editing oversight, constrictive pericarditis is included in the list of noncardiac conditions simulating congestive heart failure rather than as a condition precipitating or aggravating heart failure The film is too complicated for those who are not familiar with the difficulties already and too simple for those who are Nonetheless, the film is recommended for senior medical students, medical interns and residents, general practitioners, and internists

Venepuncture: 16 mm color sound showing time 15 minutes Produced by and procurable on rental ($8) from Imperial Chemical Industries (New *York) Ltd, 488 Madison Ave New York 22*

This film shows how good and bad venipuncture technique can affect the doctor-patient relationship Two general practitioners, skilled, and less skilled, are shown removing samples of venous blood from patients in their consulting rooms The first half of the film deals with the common errors and how to avoid them and the second half shows the correct technique The choice of the correct vein and the patient with difficult veins are dealt with Intravenous injection of fluid is also briefly illustrated The film shows good and bad needle points highly magnified, emphasizing how these can inflict unnecessary pain and injury The approach to venipunctures, both psychological and technological, and the equipment are well demonstrated, and the importance of well-kept equipment is stressed The venipuncture technique is excellent The film is recommended for medical students, technicians, nurses, and blood bank personnel

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Renal Function After Recovery from Acute Failure J T Finkenstaedt and J P Merrill New England J Med 254 1023-1026 (May 31) 1956 [Boston]

The authors record another long term follow up study of 16 patients who recovered from acute renal failure Within six months, the phenolsulfonphthalein excretion and the specific gravity of the urine were normal Clearance values however remained below the lower limit of normal in most of these patients These findings are consistent with permanent renal damage of a mild degree Progressive diminution of renal function does not occur after recovery from acute renal failure unless some other disease causes additional damage

Further Clinical Studies of Thyroid and Salivary Gland Function with Radioiodine C H Jamet and H G Thode Canad M A J 74 865-870 (June 1) 1956 [Toronto Canada]

Radioactive iodine (I^{131}) pickup conversion ratio and saliva tests were performed on over 400 patients 70 of whom had hyperthyroidism and 40 hypothyroidism The rest were euthyroid The diagnosis in each patient was first based on clinical assessment I^{131} pickup and conversion-ratio tests The I^{131} secreted by the salivary glands 24 hours after the administration of a 50 μc dose of I^{131} (saliva activity) and the ratio of the saliva activity to the activity of protein-bound iodine in the plasma (S PBI ratio) were determined Results showed that the S-PBI ratio is a remarkably good index of thyroid function Not only was the S-PBI ratio test found to be accurate in almost all patients but in many patients in whom other radioiodine tests gave inconclusive results the results of the S-PBI test were more consistent with the final clinical diagnosis Advantages of the S-PBI test for thyroid function are as follows (1) its accuracy in evaluating thyroid function in patients with hyperthyroidism is equal to that of I^{131} pickup and conversion-ratio tests (2) it gives an accurate indication of hypothyroidism whereas the other tests give disappointing results (with the exception of the thyroid stimulating-hormone test) (3) it seems to follow clinical symptoms more closely in patients during the course of treatment with I^{131} propylthiouracil and other therapy The excellent correlation between saliva tests and thyroid function provides strong clinical evidence for a connection between the salivary and thyroid gland systems and supports Fawcett and Kirkwoods concept that the salivary glands play an important part in the iodine cycle in the body possibly in the degradation of organically bound iodine

Leukemic Reticuloendotheliosis G R Gosselin D C Hanlon and G L Pease Canad M A J 74 886-891 (June 1) 1956 [Toronto, Canada]

Forty nine patients with leukemic reticuloendotheliosis were studied at the Mayo Clinic between 1944 and 1953 Leukemic reticuloendotheliosis is a definite and distinct hematological entity that may be of three main types the primitive cell type the monocytic type and the lymphocytic type Most of the authors patients had the lymphocytic type of the disease It is impossible to make the diagnosis of leukemic reticuloendotheliosis clinically with the aid of history symptomatology or physical findings since these are not specific and are quite similar to those observed in the lympholeukemia group of diseases Clinically these patients may present (1) a history of preceding respiratory infection or so-called flu syndrome which may appear as the initial manifestation, (2) systemic, nondescript symptoms such as fatigability loss of weight, low-grade fever and night sweats (3) a short history of splenomegalia and occasionally hepatomegalia (4) a mild, variable, generalized lymphadenopathy and (5) cutaneous manifestations such as generalized erythroderma mycosis fungoides and other nonspecific lesions of the skin Although the clinical aspects of this disease do not greatly differ from those of leukemias the hematological picture is pathognomonic and is characterized by the presence in the blood and bone marrow smears of reticuloendothelial cells reticular lymphocytes transitional cells and mature lymphocytes a mild to moderate usually normocytic but often macrocytic anemia leukopenia with relative lymphocytosis thrombocytopenia and hypoplasia of the bone marrow

Leukemic reticuloendotheliosis is an inexorably fatal disease in which treatment is only palliative The course of the disease is extremely variable and the disease may be manifested in three main forms The acute type is rapidly progressive with a clinical picture quite similar to that of acute leukemia death may occur within a few weeks or months This form is rarely seen in patients with the lymphocytic cell type and it occurs more frequently in the monocytic and primitive cell types Four of the 49 patients had the acute type of the disease The subacute type consists of two successive phases The first and longer phase is characterized by the involvement of one or many organs frequently the skin and by low-grade systemic manifestations The disease remains slowly progressive until the onset of the second phase which is one of acute exacerbation with the clinical picture seen in the acute type Twenty-three patients had this form of the disease The third and chronic type is characterized by prolonged spontaneous or therapeutic remissions with remarkable subjective improvement, which may last for months Twenty-two patients had this type of the disease and four of them lived for more than 10 years after the onset of symptoms Radiotherapy is the treatment of choice in these chronic cases

A Contribution to the Treatment of Peripheral Vascular Affections G B Garbini and G C Cattini Minerva cardioangiologica 4 90-100 (Feb) 1956 (In Italian) [Turin Italy]

The authors studied the effects of hydrophthalazin compounds on the arterioles of the fingers the toes and the ear lobes The variations in cutaneous temperature in the local blood flow and in general and local blood pressure were determined The photoplethysmographic tracings were studied The results showed an increase in the arterial blood flow caused by a drop in peripheral resistance and a consequent increase in local blood flow These effects were evident in normal individuals and very marked in patients with vascular disease

Five-Year Follow-Up of Minimal Pulmonary Tuberculosis With and Without Chemotherapy M E Florey Am Rev Tuberc 73 818-829 (June) 1956 [New York]

The author reports further progress of patients reviewed in a report published in 1952 Two series of 15 patients each with minimal tuberculosis were followed up during the third to fifth years from the first treatment One series of patients had received collapse therapy when possible or if impracticable, rest and graduated exercise those in the other series had received monthly courses of streptomycin, the beginning of each fresh course being dependent on the finding of a streptomycin-susceptible strain of tubercle bacilli in a laryngeal swab or sputum culture Courses were continued according to the positive bacteriological reports Some patients received only two courses within the first six months, others continued to receive them until the fourth year Comparison of the results

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library American Medical Association Periodical files cover 1947 to date only and no photoduplication services are available No charge is made to members but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them after five years of the two types of therapy when pursued for at least the first two years showed that there were 17 various interruptions to progress in eight of the patients treated without antimicrobials and 8 such interruptions in three of the patients treated with streptomycin

With regard to ultimate results after five years, the authors say that, of 15 patients who received no chemotherapy during the first two years, 11 were well, in 8 of these patients the treatment had not been changed to chemotherapy Of the 15 patients who received streptomycin, 12 were well and active at the end of five years in 10 of them treatment had not been changed to collapse therapy but in one patient collapse therapy was begun in the sixth month because resistance to streptomycin had developed The type of streptomycin therapy outlined in this paper is not one recommended for routine use at the present time, now that other chemotherapeutic agents are available The results, however, are considered useful as a basis for comparison with other kinds of chemotherapy during which patients are followed for a five-year period

A Study of Tuberculous Round Foci *J M Black and G Poole Am Rev Tuberc 73 805-817 (June) 1956 [New York]*

The authors define a round focus as one that on a plain roentgenogram appears solid, homogeneous or heterogeneous, round or nearly round, with well-defined margins, and is clearly separate from any adjacent lesion They present observations on 124 patients with a total of 177 round foci, 98 of these patients had a single round focus All patients had been under observation for more than one year, 65 for over four years In 31 of the patients the lesions were derived from infiltration and in 8 from blocked cavities, in others, the mode of origin remained unclassified In 84 of the patients the foci were initially present and in the other 40 this was not the case A table that classifies the 124 patients according to mode of discovery of the round foci shows that routine roentgenographic examination revealed the round foci in 33 males and 27 females, examination on referral for diagnosis revealed them in 25 males and 26 females, and examination of contacts of tuberculous patients revealed them in one male and 12 female patients The authors regard the rather large number of female contacts with round foci as significant The contact patients were chiefly in the younger age groups

When chemotherapy was used in the treatment of round foci, it was noted that a higher proportion of foci regressed or disappeared, compared with those not treated with chemotherapy The value of chemotherapy is more striking when given after the breakdown of a round focus, almost one-third of the foci in the present series disappeared when treated with chemotherapy after breakdown, and, in addition, almost one-half regressed In all patients in whom the disease spread after the breakdown of a round focus, rapid control of the new disease was speedily achieved by chemotherapy In 20 4% of the patients with a single round focus, the tuberculosis was progressive The authors believe that most patients with round foci should receive antituberculous chemotherapy, that surgery is only occasionally required, and that the prognosis with chemotherapy is good

Bronchogenic Carcinoma and Pulmonary Tuberculosis Problems in Diagnosis with Special Reference to Antituberculous Chemotherapy H Weissman *Am Rev Tuberc* 73 853-867 (June) 1956 [New York]

Reports of the coexistence of pulmonary tuberculosis and bronchogenic carcinoma appear with greater frequency because of the greater longevity of patients with pulmonary tuberculosis The diagnosis of the pulmonary malignancy is frequently delayed in these patients, particularly when an antimicrobial drug clears up the associated pulmonary infection The author reports observations on 25 patients with bronchogenic carcinoma who were hospitalized at the Veterans Administration hospital, Castle Point, N Y, between 1946 and 1954 inclusive These patients were divided into five groups Group 1 consisted of patients whose bronchogenic carcinoma was combined with active pulmonary tuberculosis and who were treated with various regimens of streptomycin, isoniazid, and aminosalicylic acid This resulted in reversal of infectiousness, clinical improvement, or roentgenologic improvement, either alone or combined Group 2 consisted of similar patients whose pulmonary tuberculosis was treated with bed rest alone Group 3 consisted of patients in whom the pulmonary malignancy was combined with inactive pulmonary tuberculosis Group 4 comprised patients with a pulmonary malignancy that simulated active pulmonary tuberculosis and was treated as such Group 5 consisted of patients whose pulmonary malignancy was not combined with any other pulmonary disease All but one of the five patients belonging to this group were treated for respiratory symptoms for an average of six months The fifth patient, although ill for five months, consulted his physician only three days prior to hospitalization

The author emphasizes that, with the steady increase of active pulmonary tuberculosis among males of the fifth, sixth, and seventh decades, an increased incidence of bronchogenic carcinoma in this susceptible age group is to be expected When the pulmonary tuberculosis fails to conform to the pattern of uncomplicated disease, the presence of another disease entity should be considered It is important to rely less on laboratory procedures and more on clinical appraisal, which takes into account the whole person, the symptoms, and the clinical course as they relate to the roentgenographic findings The importance of metastatic or arthritic manifestations as presenting symptoms in the diagnosis of bronchogenic carcinoma is discussed In the susceptible age group, a high index of suspicion in regard to a possible pulmonary neoplasm is necessary The presence of active or inactive pulmonary tuberculosis or the demonstration of tubercle bacilli in the sputum does not exclude the possibility of coexisting bronchogenic carcinoma

Human Infection with the "Yellow" Acid-Fast Bacillus A Report of 15 Additional Cases L E Wood, V B Buhler and A Pollak Am Rev Tuberc 73 917-929 (June) 1956 [New York]

The authors had previously reported two cases of human disease due to an atypical acid-fast organism that has been referred to as the yellow bacillus" because of the yellow appearance when grown on culture mediums This chromogenic quality distinguishes the yellow bacillus grossly from human tubercle bacilli, which produce a cream to buff color, and from the acid-fast saprophyte (the 'orange bacillus'), which produces an orange color The yellow bacillus produces a smooth colony, is acid-fast with the Ziehl-Neelsen or Fite stain, and is larger than the bacillus of the H34Rv strain of Myco tuberculosis It does not produce progressive fatal disease in guinea pigs but does produce generalized disease and death when injected into Syrian golden hamsters The present paper reports 15 additional patients with disease due to this organism, including one previously mentioned briefly in abstract form The yellow bacillus was cultured from 16 of the 17 patients The series included 5 women, 11 men, and 1 baby boy

An initial diagnosis of tuberculosis was made for all of these patients and they were treated accordingly Most of them received antimicrobial therapy consisting of administration of some combination of streptomycin, isoniazid, and aminosalicylic acid The majority of these patients showed some clinical and roentgenographic improvement Those with generalized disease, however, failed to show any favorable response Preliminary experimental data indicated that the yellow bacillus is susceptible to streptomycin in therapeutically obtainable concentrations Aminosalicylic acid produces only a temporary inhibition of growth The effects of isoniazid are variable, most of the strains of the yellow bacillus are resistant to moderate or even high concentrations This applies to some organisms cultured from patients who have not received this drug At present, 4 of the 17 patients are well and working, another patient, who has neither roentgenographic nor bacteriological evidence of disease, complains of slight productive cough and increased fatigability, one patient is under observation and treatment, 5 patients could not be followed, and 6 patients died, 5 of the disease Information on the sixth patient who died is incomplete It appears that this disease has a gloomy prognosis It must be remembered, however, that many of these patients came to the attention of the writers because of their severe clinical course, so that no accurate conclusion can be drawn from the present series concerning the ultimate prognosis of this infection

The Effect of Corticotrophin (ACTH) on Ammonia Production in the Nephrotic Syndrome G H Heidorn. Am J M Sc 231 644-654 (June) 1956 [Philadelphia]

The nephrotic syndrome includes numerous physiological defects Corticotropin (ACTH) and adrenal corticosteroids have a favorable influence on some of these defects The author reports observations on 10 patients with the nephrotic syndrome who were treated with corticotropin and in whom adequate urine collections could be made They ranged in age from 4 to 28 years The diagnosis was based on conventional criteria Eight of these patients responded well to corticotropin Two failed to respond and died in uremia All but one of the eight in whom the treatment was successful have been well for from three months to three years They were maintained on a low-sodium acid-ash high-fluid regimen The one patient in this group who did not do well left the care of the author and was treated by a nonmedical practitioner

The author is primarily concerned here with the level of ammonia excreted in the urine Ammonia determinations were done on daily 24-hour urine samples Balance studies for sodium and potassium were undertaken and the daily dietary intake of sodium and potassium was calculated for the food actually ingested Urine and plasma sodium levels were determined by the use of the flame photometer Fecal and skin losses were estimated Body weights were recorded on a scale sensitive to 100 gm Urine ammonia excretion rose from 62 to 380% above control values in these eight patients during the administration of corticotropin The clinical and physiological significance of this rise in ammonia production is not understood It seems to be due either to a direct effect of corticotropin or its associated hormones from the adrenal cortex upon the enzyme system concerned with the deamination of glutamine or else to an increased availability of the amino acid glutamine

Life Expectancy of Patients with Essential Hypertension Who Adhere to a Salt-Free Diet for Years H Sarre W Kampmann and G Schmidt. Klin Wchnschr 34 509-512 (May 15) 1956 (In German) [Berlin Germany]

Among 977 patients with different types of hypertension the authors were able to trace and study 45 with essential hypertension in whom it could be demonstrated that they had lived up to nine years on a salt free diet. These patients lived under favorable economic conditions enabling them to enrich and make more tasty and endurable the otherwise tasteless salt-deficient diet Another group of 45 patients with essential hypertension, who did not adhere to the diet with restricted salt intake, served as controls In other respects, such as previous history blood pressure eyeground changes, and complications the two groups of patients were comparable

Particular attention was given to the life expectancy and the causes of death It was found that a favorable influence of the salt-deficient diet could be observed during the first three years This favorable effect was evident particularly in those with the highest blood pressure values The salt deficiency seems to exert its favorable effect by improving the cardiac insufficiency Heart failure could be retarded for several years The lower death rate of those on a salt-deficient diet seemed to "catch up" during the fourth and fifth years so that after the fifth year the number of survivors in the two groups was practically identical

Treatment of Diabetic Adolescents with Sulfanilylurea Derivatives H Otto Medizinische No 22 pp 824-826 (June 2) 1956 (In German) [Stuttgart, Germany]

Seven patients between the ages of 9 and 22 years with diabetes mellitus who were considered in need of insulin were admitted to the second medical clinic of the general hospital in Hamburg-Barmbeck, Germany One of the patients had mild acidosis and two were precomatose Their conditions were first stabilized with unmodified insulin, and they were then given long acting (lente) insulin In addition, they were given a proprietary preparation of carbutamide (Nadisan) orally in high doses The patients were placed on a diet poor in fat (70 to 80 gm) and relatively rich in carbohydrates (300 to 400 gm) They were discharged from the hospital after two or three weeks when their daily insulin requirement varied between 20 and 44 units Older patients were given 2 gm of carbutamide daily and children received 0.5 or 1 gm of carbutamide daily The patient s metabolism was examined at short intervals and the results of the examinations were so satisfactory that after each examination the insulin dose could be reduced None of the seven patients required more than 12 units of insulin daily at the time of the writing of the paper three to seven months after the institution of the oral treatment with carbutamide One may assume that the insulin requirement of several of the seven patients would also have decreased if they had not been given carbutamide This assumption seems to be warranted because spontaneous remissions occurred in five adolescents with diabetes mellitus who were treated with insulin alone Such remissions, however are rare Four of the seven patients who were treated with insulin and carbutamide were of asthenic-leptosomatic type The spontaneous remissions that resulted from treatment with insulin alone occurred mostly in adolescents who were of the sthenic-pyknic type The number of patients reported on is too small and the follow-up too short for definite conclusions but the author s observations suggest that the sulfanilylurea derivatives may prove of value also in the treatment of asthenic and young patients with diabetes mellitus

SURGERY

The Diagnostic and Prognostic Significance of Flack s Endurance Test Before and After Mitral Commissurotomy C Zaccarini Minerva cardioangiologica 4 177-181 (March) 1956 (In Italian) [Turin, Italy]

Flack s endurance test was given to 80 patients before and after mitral commissurotomy Hemodynamic alterations were greatly emphasized during the test. Evaluations were made by taking into account the length of time the patient was able to keep the pressure at 40 mm Hg and the variations in the pulse rate during the test. All patients had pure and severe stenosis Commissurotomy was performed with a finger except in a few cases All patients survived The results were rated as excellent, good, mediocre, and poor as shown by the test. Before the intervention the test gave good results in eight patients the condition of their heart was excellent for surgical intervention Results were good in 26 patients mediocre or unsatisfactory in 38, and poor in 8 The test was given again 15 days after surgery The results in the first group were the same Of the second group in 14 the results were excellent, and they were transferred to the first group In the third group only 2 retained their classification 24 had excellent results and 12 had good results Only two in the fourth group had results better than those in the first test The author believes that the Flack test is of value in estimating the resistance of the patient before commissurotomy After surgery the test helps in determining the improvement in the cardiorespiratory condition of the patient

Abronchiectatic Bronchiectasis The Recognition of Surgical Pneumonitis R E MacQuigg Am Surgeon 22 465-473 (May) 1956 [Baltimore]

A productive cough is generally regarded as typical of the bronchiectatic patient, yet bronchiectasis sicca has long been known although this form of the disease is often dismissed as a "cigarette cough" or "chronic bronchitis " Pulmonary fibrosis and emphysema and even death from failure of the right side of the heart or from pneumonia occur in patients in whom the early pulmonary foci were not recognized The incidence of hemoptysis has been found to be greater in dry than in wet bronchiectasis Patients may have advanced ectasia without apparent symptoms Some have intercurrent respiratory infections and episodes of sputum production yet may escape frank pneumonitis or any evidence of chronic toxic reactions such as fever or debility The bronchiectasis after tuberculosis furnishes an example, particularly if there is adequate drainage

The author assesses localized bacterial infection as a factor in the chronicity and recurrence of pneumonitis The postpneumonic granuloma represents evidence that the action of bacteria is not necessary for the perpetuation of chronic pneumonitis There are patients with symptoms resembling those under discussion whose roentgenograms reveal a mass, usually dating from a pneumonic episode These patients are cured after resection, and yet the most careful culture studies may reveal no pyogens or other microbial agents to explain the symptoms

The author presents two case histories that illustrate the syndrome and suggests that the absence of ectasia may be partly explained by variations in individual fibrocytic response Just as some tend to form keloids after incision, some may have a peribronchial fibrosis that keeps pace with the destruction of yellow elastic fibers so that actual ectasia never takes place, even in the smaller bronchi However, with metaplasia and loss of cilia stagnation of the ever-present secretions may result, with symptomatic tiny areas of atelectasis and with all the other sequelae of the so-called obstructive syndrome Patients with these lesions must be recognized, and those with sufficient localization of the pneumonitis should be subjected to surgical resection There seem to be increasing numbers of these patients, because before the antibiotic era frank bronchiectasis or abscess supervened Recurrence after supposedly adequate medical therapy and toxicity between acute episodes seem to indicate that antibiotics are inadequate The author feels that the term 'abronchiectatic bronchiectasis' is appropriate for this condition, which is characterized by cough, usually nonproductive It usually is associated with pulmonary emphysema Bronchial ectasia is not typically found on bronchography, although areas may be found with deficient filling even on roentgenologic films taken hours after instillation of the oil Resection is recommended as the therapy of choice

The Surgical Treatment of Familial Polyposis of the Colon

H E Lockhart-Mummery, C E Dukes and H Bussey Brit J Surg 43 476 481 (March) 1956 [Bristol, England]

Familial intestinal polyposis is a hereditary disease characterized by the development in childhood or early adult life of great numbers of adenomatous tumors within the mucosa of the colon and rectum The authors had exceptional opportunities for studying it, because for the last 30 years research into its origin and treatment has been carried out at their hospital (St Mark's) in London, which now has records of 58 families in which this disease has occurred In each of these the affected members have been investigated and as many relatives as possible have been traced These 58 families now include 1,069 members (using the word member to describe patients with polyposis and their brothers, sisters, and direct descendants) Two hundred eighteen of these 1,069 persons had polyposis, and cancer developed in 154 of the 218 The authors are concerned chiefly with the surgical treatment, reviewing observations on 60 patients with familial polyposis of the colon who were subjected to major surgery between 1918 and 1954 inclusive The patients are divided into two groups to demonstrate how greatly the results of surgical treatment of polyposis have improved during recent years The first 21 were treated in the period 1918 to 1945, and the remaining 39 were treated since 1946 The year 1946 is taken as a dividing line because, beginning in that year, special efforts were made to trace relatives of previously treated patients, some of whom were visited in their homes and others invited by letter for examination This resulted in the discovery of patients in whom the polyposis was in an early stage of development

Of the 21 patients treated during the early period, 14 were treated by excision of the rectum, 4 by subtotal colectomy with anastomosis of the ileum to the rectum or sigmoid, and 3 by partial resection of the colon with Paul-Mikulicz anastomosis The surgical mortality in this group was 23%, and in 6 of the 16 survivors another primary tumor developed subsequently in the remaining part of the colon Of the 39 patients treated during the later period, 5 were treated by total proctocolectomy with establishment of a permanent ileostomy, 2 by a combined excision of the rectum and hemicolectomy on the left, one by partial resection of the colon with anastomosis, 2 by total proctocolectomy with ileoanal anastomosis, and 29 by total colectomy with anastomosis of the ileum to the remaining rectal segment

In the second series, one or more carcinomas were found in 14 of the 39 initial surgical specimens, an incidence of malignant change of 35 9%, whereas in the 21 cases of the first series, cancer was found in the initial surgical specimen in 11 cases, an incidence of 52 4% The authors think that the lower incidence of malignancy in the second series is to be attributed to earlier treatment There were 2 operative deaths among the 39 patients, 5 died of recurrence or other disease, a new primary carcinoma developed in one of the patients, and the remaining 31 are still living The method of treatment most frequently used at present at St Mark's Hospital is the removal of the colon with preservation of the lower rectum, to which the ileum is joined—that is, a total colectomy with ileorectal anastomosis

Osteomata of the Paranasal Sinuses A Report of Five Cases, with Special Reference to Their Treatment

J Andrew Brit J Surg 43 489-497 (March) 1956 [Bristol, England]

Andrew presents the histories of five patients with osteomata of the frontal or ethmoidal sinuses, which he divides into three groups The first patient presented with deformity as the only symptom The second group comprised two patients presenting with deformity, visual disturbance, and headache In the third group there were two patients who were admitted to hospital with acute intracranial infection Pain may be unilateral, either in relation to a visible swelling or behind one eye, or the patient may suffer from frontal headaches with no lateralizing features Deformity is the most common presenting symptom, and was found in all of the cases reported here It may take the form of either a hard bony swelling or a unilateral proptosis An osteoma of the frontal sinus may cause its outer table to be displaced forward, the tumor therefore presenting just above the glabella An osteoma arising in the ethmoid air cells or extending into the orbit may produce a bony swelling related to the nasion or to the orbital margins Proptosis is occasioned by the orbital extension of the tumor and is, of course, nonpulsating It may increase suddenly as a result of orbital cellulitis The globe of the eye is frequently displaced downward as well as forward, particularly when the osteoma arises in the frontal sinus Visual disturbance will be characterized most frequently by diplopia and less often by visual loss

Although some observers have reported cases in which there was recurring upper respiratory infection, no such history was obtainable in this series The absence of such infections is surprising, as pus was found in the frontal sinuses in three of the patients at operation More fulminating infections, spreading to all the paranasal sinuses and to the orbit, occurred in one of the patients in this series, in whom the orbital cellulitis was followed by pneumococcic meningitis Another patient had a cerebral abscess In view of the complications to which they may give rise, these tumors should be excised early Although this view has been fairly widely held in recent years, one of the patients presented was observed for six years, with a progressive deformity, until at length he developed acute meningitis It is believed that early excision is desirable, and in many cases this should be by a frontal craniotomy

The Surgical Treatment of Lower Lobe Tuberculosis

V O Bjork J Thoracic Surg 31 655-671 (June) 1956 [St Louis]

In 22 patients with tuberculous cavities and bronchial stenosis in a lower lung lobe who underwent lower lobe resection at the Sabbatsberg Hospital in Stockholm, Sweden, various surgical procedures were used in an attempt to diminish the size of the thoracic cavity when this was indicated after the resection A basal thoracoplasty was performed in three patients An optimal oxygen uptake was obtained by the remaining lung on the operated side at a moderately increased ventilation but a comparatively extensive rib resection had to be performed, resulting in considerable deformity, which prevented further use of this method The remaining upper lobe was displaced downward by an apical extrapleural plombage in four patients and by a primary upper thoracoplasty in five A comparatively poor functional result was obtained with the aid of the extrapleural plombage A good functional result may be obtained after primary apical thoracoplasty and lower lobe resection with extended thoracoplasty at a second stage, but from a physiological point of view this plan of treatment must be considered unsatisfactory and it has therefore been abandoned

The method of choice seems to be an upper osteoplastic thoracoplasty performed at the same time as the lower lobe resection This surgical method was employed in 10 patients In the first operations the patient was placed in the lateral position and the incision was made through the bed of the sixth rib and the roof of the seventh rib In the later operations the patient was placed in the face down position in which the lower lobectomy was carried out more easily through the bed of the fifth rib permitting a more horizontal roof with fixation of the ribs to the posterior end of the sixth rib From a functional point of view the results obtained with this one-stage procedure were as good as those obtained with the earlier two-stage procedures The same function was obtained with this upper osteoplastic thoracoplasty as with the earlier basal thoracoplasties The cosmetic result after an upper osteoplastic thoracoplasty was far superior the deformity was mainly localized in the axilla and could not be seen unless the undressed patient lifted the arm In a few patients in whom there is no danger of infection one may consider a reduction of the thoracic space from below by mobilizing the diaphragm and resuturing it at a higher level

Paget s Disease of the Nipple A Clinical Review of 27 Cases P Helman and M Kliman Brit J Surg 43 481-488 (March) 1956 [Bristol England]

Follow-up studies were made on 27 patients with Paget s disease of the nipple treated at two London hospitals Paget s disease is a malignant process from the onset. The first lesion is an intraduct carcinoma, and extension of this to the epidermis produces the scaly, red eczema of the nipple and areola At this very early stage cure is possible if the whole breast is removed. When there is a change from the purely intraduct condition to a growth invading the breast connective tissue the condition is in a late stage and not usually curable All but four of the patients were over 50 years of age The age distribution for Paget s disease corresponds to that for carcinoma of the breast Paget s disease accounts for slightly less than 1% of all breast carcinomas There seems to be no relationship between the duration of symptoms and the survival time One patient had only a six-month history but died with metastases within one year Another patient giving a history of one year was still alive and well 11 years later

Fifteen patients presented with eczema or superficial ulceration of the nipple only Eleven patients presented with eczema as well as a palpable lump One patient presented with only a palpable lump of two months duration and no obvious skin changes Simple mastectomy followed by deep x-ray therapy gave as favorable results as any other treatment in those patients who had eczema of nipple only The prognosis for this group is as good as or perhaps even better than that for stage 1 breast cancers The prognosis for those patients who had a palpable lump in addition to a nipple lesion was very bad The authors gained the impression that the presence of a lump in the breast means that the disease is advanced Treatment of patients who present with a palpable tumor can only be palliative, and it is questionable whether a radical mastectomy is warranted The nipple lesions may apparently heal in many patients but they invariably recur even after a period of years

Surgical Aspects of Pancreatic Disease C G Child and A J Donovan J Louisiana M Soc 108 195-204 (June) 1956 [New Orleans]

The four affections of the pancreas generally amenable to surgical treatment are certain congenital anomalies such as pancreatic ectopia and annular pancreas injuries caused by violence inflammatory disease and cancer Congenital anomalies and trauma of the pancreas do not present difficult diagnostic problems and surgical intervention although at times technically hazardous, is generally attended by satisfactory results The surgical treatment, however, of patients with inflammatory or neoplastic disease of the pancreas is controversial, and the accomplishments all too often disappointing With the advent of accurate tests of increased serum amylase activity, it became possible to establish the diagnosis of acute pancreatitis without recourse to operation Effective measures for ameliorating the distressing manifestations of the acute attack consist of constant gastric suction and administration of atropine, methantheline (Banthine), and acetazolamide (Diamox) Only when the acute attack relentlessly progresses to pancreatic necrosis or abscess formation does emergency surgical intervention become necessary

In the patient with recurrent pancreatitis, the surgeon must seek to accomplish relief of obstruction to the pancreatic drainage system Once the diagnosis has been established the first steps are the detection and elimination of chronic biliary tract disease and duodenal ulceration, if these are found to exist A normal biliary and gastrointestinal tract however, should not militate against exploratory celiotomy and operative cholangiography as soon as the acute attack has completely subsided Proof that the pancreatic ducts are patent can only be gained by transduodenal pancreatography If pancreatography has demonstrated an obstruction in the main pancreatic duct, simple dilatation appears legitimate in the absence of advanced fibrosis and calcification of the pancreas, but distal pancreatectomy or pancreaticojejunostomy is the only reasonable way of permanently relieving obstruction of the pancreatic duct Choledochojejunostomy is indicated for fibrotic stenosis of the intrapancreatic portion of the common duct without concomitant obstruction of the pancreatic duct

Diagnosis of cancer of the pancreas is still long delayed Tumors of the body and the tail are almost never discovered in an operable stage, while jaundice must almost inevitably make its appearance before patients with cancer of the head of the pancreas are seriously considered for operation Early cancer of the head of the pancreas can be completely removed by pancreaticoduodenectomy which is a good operation in competent hands and one that should not be associated with an unreasonable mortality If the jaundice has been of long duration preliminary decompression of the biliary tract by choledochostomy is at least desirable if not essential 10 days to two weeks later, definitive resection can then be accomplished more safely If jaundice is of short duration and the patient s nutritional reserve is adequate pancreaticoduodenectomy may appropriately be performed in one stage

Malignant Degeneration in Sebaceous Cysts H Charache Am Surgeon 22 482-484 (May) 1956 [Baltimore]

The author presents the case of a 31-year-old woman who had a "boil" on the right arm About two weeks before she had noticed a "pimple" on the right arm which changed to a boil after she squeezed it. Six years previously she had a sebaceous cyst removed from her forehead Examination showed the patient to be in good physical condition A small cystic mass about 2 cm in diameter was found on the right arm The overlying skin was partially ulcerated A diagnosis of sebaceous cyst was made and the cyst was excised The histological diagnosis was sebaceous cyst with incipient intraepidermic epithelioma " The wound healed by primary intention and she received postoperative radiotherapy

Very little attention is paid to sebaceous cysts The majority are removed without histological examination of the tissue Ninety-six cases of sebaceous cysts with malignant degeneration were found recorded in the literature up to the present writing The majority were single case reports Investigators who studied a total of 718 sebaceous cysts found 31 or 4 3%, to be malignant. How many sebaceous cysts with malignant degeneration have been discarded undiagnosed will never be known When they are diagnosed after a recurrence, the diagnosis usually is squamous cell carcinoma of the skin

Disturbances and Alterations Due to Antibiotics in Surgery M Battezzati and A Tagliaferro Minerva chir 11 161-180 (March 31) 1956 (In Italian) [Turin Italy]

The indiscriminate use of antibiotics can produce undesirable effects in surgery Antibiotics are not entirely harmless Impurities that enter the preparation and the antibiotic itself have some toxic effect. Minimal toxic and lethal doses can be determined for each antibiotic The bactericidal and bacteriostatic action of antibiotics have markedly modified pathology and medicine Artificial recovery has taken the place of natural recovery The human organism recovers naturally from an infection through specific and nonspecific immunization processes combined with the organism's ability to react to and defend itself against the infection Antibiotics limit the specific immunization reaction because they act directly on the bacteria This explains the frequency of relapses encountered after antibiotic therapy Antibiotics depress the nonspecific immunity process The interference of the antibiotic with the organism's ability to react is of particular interest in surgery The authors discuss this problem in relation to circumscribed surgical infections and to surgical trauma Antibiotic therapy in circumscribed infections makes the process chronic and does not permit a true recovery Surgical intervention may be delayed but is still necessary, and its effects are hampered In surgical trauma, antibiotics have a depressing effect on the organism's ability to respond to the stimulus of the adrenal gland Reversible histological alterations are determined in the adrenal cortex The indiscriminate use of antibiotics just before or after surgical intervention is harmful In generalized infections, when the organism of the patient is still able to react, the use of antibiotics helps the reaction Artificial hibernation gives the antibiotic the necessary time for positive action when the organism is exhausted

Motor-Cyclists, Crash Helmets, and Head Injuries W Lewin and W F C Kennedy Brit M J 1 1253-1259 (June 2) 1956 [London, England]

Surveys showed that 30% of all head injuries caused by road accidents occurred in motorcyclists Although the mortality from head injuries from all causes has fallen in the last seven years from 12 3 to 4 3%, the proportion of deaths among motorcyclists has risen from 26 to 37% Of 2,478 civilian patients with nonmissile head injuries from all causes who were admitted to hospital, 555 (22 4%) were motorcyclists The problem of head injuries and the use of crash helmets was studied in these 555 patients and in 135 Army motorcyclists with head injuries who were admitted to a military hospital Observations in these two groups of patients left little doubt that an efficient crash helmet will prevent many minor concussions and lessen the effect of more severe injuries The risks of severe and complicated skull fractures are considerably reduced The criteria of an effective helmet are outlined as follows The outer shell should be tough, not easily deformed and not brittle so as to render it liable to fracture The surface should be smooth and free from excrescences, so that the helmet can glide over the area struck and thus reduce friction Extra padding should be added to the frontal region, and a flexible peak might diminish fascial injury To protect the temporal region, the part of the ear flap where it is attached to the rim of the helmet should be appropriately padded or, alternatively, synthetic materials used in place of leather that might help to deaden the blow Not more than one-third of motorcyclists wear crash helmets at present, but all should be encouraged to do so

NEUROLOGY & PSYCHIATRY

Phenylketonuria A Survey of Cases at the Manitoba School R Gibson Canad M A J 74 897-900 (June 1) 1956 [Toronto, Canada]

A routine examination of the urine for phenylpyruvic acid was carried out in 793 inmates of the Manitoba School, the mental deficiency center of the Canadian province of Manitoba Phenylketonuria or phenylpyruvic oligophrenia, a rare metabolic abnormality, was found in seven of these mentally defective persons In the first two patients, brothers aged 23 and 26 years, one of whom had typical mongoloid deficiency, the phenylketonuria was discovered with the aid of the ferric chloride test The next three patients were siblings, two brothers and one sister aged 27, 19, and 14 years respectively, the brothers were incontinent and destructive idiots and the sister was a low-grade imbecile The remaining two patients, a 42-year-old and a 30-year-old woman, were also imbeciles The incidence of phenylketonuria in this institutional population thus was 0 88% The mental level was low, with four imbeciles and three idiots Family histories revealed that the mother and the only brother of one patient were mentally defective The mother and maternal aunt of a second patient were psychotic and a sister was of subnormal intelligence The father of the three siblings with phenylketonuria had had epilepsy for five years Of the remaining two patients, the father of one died of a cerebral neoplasm and a sister was epileptic a cousin of the paternal grandmother of the last patient was mentally defective

In addition to oligophrenia and the urinary excretion of phenylpyruvic acid, six of the seven patients presented features commonly associated with the disease, including pallid complexion, fair hair and blue eyes, slight reduction of skull circumference, widening of the maxillas, hyperreflexia, and hyperkinetic movements of the fingers The seventh patient, a mongol with phasic urinary excretion of phenylpyruvic acid, showed none of the pigmentary, osseous, or neurological features of this disorder, in this patient the biochemical error would appear to be incomplete or compensated

Encephalomyelitis Simulating Poliomyelitis A M Ramsay and E O'Sullivan Lancet 1 761-764 (May 26) 1956 [London, England]

In the summer of 1955, cases of encephalomyelitis simulating poliomyelitis appeared in North-West London The general picture and the results of investigation have shown that a diagnosis of poliomyelitis was untenable Similar outbreaks have been reported from other countries The authors describe eight cases variously reported as meningitis, poliomyelitis, and pyrexia of unknown origin, which occurred between April 1 and Oct 31, 1955 During that period 51 patients with confirmed poliomyelitis (22 paralytic, 29 nonparalytic) were admitted to the Infectious Diseases Unit at the same London hospital All except one of the eight patients were females The onset was generally insidious Headache, pains in the limbs, and giddiness were prominent in most patients Lassitude and inertia, nuchal pain, symptoms of infection of the upper respiratory tract with sore throat, vomiting, paresthesias, anorexia, and nausea, were present in over half the cases Muscular cramps, twitchings, pain referred to the ears, and transient or persistent tinnitus were also noted Lymphadenopathy affecting chiefly the posterior cervical lymph nodes was found in seven cases, various grades of neck stiffness paresis, and exaggerated reflexes in six, objective sensory impairment and muscle tenderness in five, cranial nerve involvement in four, extensor plantar responses in three, nystagmus in two, and diplopia in one The blood picture, with neutropenia and inconstant abnormal lymphocytes, was characteristic of virus infection, but despite extensive investigations a virus was not isolated Throat washings and/or feces were examined in tissue culture of monkey kidney for poliomyelitis and Coxsackie and other viruses Screening by serologic testing of paired serums for lymphocytic choriomeningitis, mumps, leptospirosis, and all three immunological types of poliomyelitis was negative in each patient Electromyography showed absence of the denervation characteristic of poliomyelitis and the presence of long polyphasic units with reduced interference pattern characteristic of a myelopathic lesion A repeat examination after five months showed no change Persistent proneness to fatigue was a troublesome sequel in six patients Five patients presenting behavior changes were examined by electroencephalography Although abnormalities were detected in all patients, they were nonspecific and may be constitutional Five of the eight patients showed residual disabilities

Further Outbreak of a Disease Resembling Poliomyelitis D W Sumner Lancet 1 764-766 (May 26) 1956 [London, England]

Since 1948, outbreaks have been reported of an illness that in many respects resembles poliomyelitis but that differs from poliomyelitis in its epidemiology, in the mildness of the illness itself, in the high proportion of normal cerebrospinal fluids found, in the absence of any detectable virus, and in the frequent psychological changes The patients in the present series were previously fit young soldiers, of whom all but one lived in the same barrack block in Berlin The one exception was an orderly who, having nursed the other patients, was himself a close contact The outbreak was explosive, the last patient being taken ill only eight days after the first, it occurred in November, 1954 The syndrome was marked by headache, limb pains, and muscle tenderness, photophobia and hyperacusis were common and in some cases headache and depression persisted in convalescence The cerebrospinal fluid was normal in every patient but one No virus was detected, and agglutination tests were negative

Clinical Findings Six Years After Outbreak of Akureyri Disease B Sigurdsson and K B Gudmundsson Lancet 1 766 770 (May 26) 1956 [London England]

In 1948-1949 there was an extensive epidemic of 465 cases simulating poliomyelitis in the town of Akureyri in northern Iceland. The population of Akureyri being 6 900 the attack-rate was 6 7% Paresis was observed in 129 cases There were no deaths The attack-rate was highest in the age-group 15-19 but was also high among young adults generally The disease was accompanied by low pyrexia, which sometimes persisted for weeks, and by pain in one or more limbs and in the nape and back Muscle tenderness was a prominent symptom The aches often persisted long after the disappearance of all objective signs Complaints of nervous instability, sleeplessness, and loss of memory persisted in many patients for a long time afterwards Feces were tested for poliomyelitis virus and for Coxsackie virus but no virus was found Since 1950, several outbreaks have been described that very much resemble Akureyri disease The symptoms and epidemiological behavior of these infections are hardly sufficiently characteristic to enable all these various outbreaks to be classified together before information on their specific cause is obtained However it seems very likely that these epidemics constitute a nosological entity, but the relationship if any, to poliomyelitis remains obscure

In 1955, six years after the outbreak, one of the authors went to Akureyri and subjected 39 of the patients to a complete neurological examination Only patients who had been examined shortly after the outbreak six years ago were examined this time All former patients except one with gastric ulcer were back at their usual work There were 33 females and 6 males The attack-rate during the epidemic was higher in females Many of the patients still complained of nervousness, tender muscles pains and tiredness Signs of paresis hypoalgesia, and hypoesthesia were not uncommon, and other complaints were listed Since no deaths have been reported there has been no opportunity of studying the distribution and nature of possible anatomic lesions The findings reported here indicate that, in some cases many of the signs and symptoms may persist at least for several years The authors suggest that the disease be called Akureyri, rather than Iceland disease, until more is known about its cause the anatomic basis, and the signs and symptoms

Determination of Neutralizing Antibodies Against Poliomyelitis Virus in the Serums of Healthy Children and Adults R Sauthoff Klin Wchnschr 34 519-521 (May 15) 1956 (In German) [Berlin, Germany]

Poliomyelitis virus type 1 was the cause in numerous patients with paralytic and nonparalytic disease treated at the Children s Clinic in Freiburg i Br Germany Investigators who made antibody determinations preliminary to vaccination against poliomyelitis in the area from which this clinic derives its patients found antibodies against type 1 of the poliomyelitis virus in a large number of persons in all age groups This observation suggested that a large percentage of the population had been silently immunized against poliomyelitis It seemed advisable to make spot-check tests on the distribution of all three types of polio myelitis virus in the same population During the months from December 1954 to May 1955, blood specimens were obtained by venous puncture from 26 children under 15 years of age and from 25 adults a total of 51 persons who had no history of a previous attack of poliomyelitis This group included no infants or young children

The serum specimens were collected and were kept at –20 C until they were processed The neutralization test was made in trypsinized monkey-kidney cultures Antibodies against type 1 were present in 14 of the 26 children Of the 25 persons in the higher age groups only 3 did not have antibodies against type 1 virus Antibodies against type 2 were found in a total of 24 of the examined 51 persons, 9 of the 24 were children and 15 were adults Antibodies against type 3 virus were present in 14 children and 15 adults Some of the persons tested had antibodies against only one type of poliomyelitis virus others against two, and still others against all three types of poliomyelitis virus These investigations prove that infections with all three types of virus take place at a relatively early age Attempts at virus isolations that have been carried out during recent epidemics of poliomyelitis revealed that the stools of patients with clinically manifest poliomyelitis only contained the type 1 virus

Procaine Injections in Sciatica and Referred Sciatic Pain A Tanberg Tidsskr norske lægefor 76 288-290 (May 1) 1956 (In Norwegian) [Oslo, Norway]

Paravertebral injection of procaine is an effective means of bringing most cases of radicular ischias into a quieter phase Thirty eight patients were treated with slow paravertebral injection of 20 ml of a 1% procaine solution in isotonic sodium chloride solution below the fifth lumbar spinous process in the direction of the lumbosacral trunk 20 of the patients became free from pain, 10 were so much improved that they could return to their work, and 8 were unchanged. The effect was sometimes dramatic The improvement may continue for several days and occasionally a single injection will give freedom from pain for several months As a rule several injections are required They are given at intervals of from four to seven days Degeneration of the fifth lumbar or first sacral intervertebral disk was demonstrated in 30 cases In case of referred sciatic pain, intramuscular injections of from 10 to 15 ml of a 0.25% procaine solution in isotonic sodium chloride solution in the trigger points are often valuable Nervous" ischialgia does not react to the injections

GYNECOLOGY & OBSTETRICS

Cervimetry An Objective Method for the Study of Cervical Dilatation in Labor E A. Friedman Am J Obst & Gynec 71 1189-1193 (June) 1956 [St. Louis]

Verification of the sigmoid curve of cervical dilatation, derived from a detailed study of the dilatation time by means of rectal and vaginal examinations has awaited the development of a truly objective device whereby the moment-to-moment changes may be accurately measured Such an instrument has been devised The author presents data obtained with the cervimeter in a group of 25 primigravidas The cervimeter permits the objective study of labor as reflected by cervical dilatation, a comparison of drugs in regard to their actions on labor, and satisfactory verification of the sigmoid curve of labor in the primigravida The alleged inaccuracy of digital examinations in labor has been disproved. While it is clear that the cervimeter is an accurate device for determining cervical dilatation, it has been found that frequent digital examination is much more expedient The author doubts that, in its present form or in any conceivable modifications the cervimeter will ever be used in other than experimental projects Nevertheless for purposes of academic study it may be regarded as a valuable adjunct in the study of parturition

Dangers of the Read Method in Patients with Major Personality Problems F S Rogers Am J Obst & Gynec 71 1236-1241 (June) 1956 [St. Louis]

There are no psychoses specific to either pregnancy or the puerperium but latent or repressed psychological factors may under the stress of maintaining physiological and emotional homeostasis prove too great for the patient s ego resources with the result that psychopathological reactions occur The author has found that, in pregnant women who are obsessed with the idea of "natural childbirth," the psychoneurotic or psychotic factor looms large While the Read method of natural childbirth is an extremely valuable procedure when properly applied by an obstetrician on a woman whose psychological make-up is such that she receives the suggestions and instructions with confidence, on the other hand the patient obsessed with the idea, or demanding it as a possible means of release from her own tensions and neuroses is a poor risk, and will often develop a true psychosis especially during the puerperium Fa[illegible]rs of importance in the disordered personality structure [illegible] an antagonism toward the opposite sex, apparently largely due to poor childhood relations with the parents, especially the father, and dependency on the mother with an inability to assume a mother's role, especially if the mother has emphasized the dangers of pregnancy Sexual frigidity is often the result and is present in a large percentage of the patients These patients require careful guidance and may even need psychiatric care If they seem to improve after delivery without psychiatric care, the improvement is only short lived and is due to the satisfaction derived from punishment associated with guilt Obstetricians should be aware of the necessity for early personality evaluation in order that such a woman may have the benefit of the method of care and delivery best suited to her particular psychological needs

Endocervical Curettage An Aid in the Diagnosis of Early Cervical Cancer L Clarke and H L Gilmore Jr Obst & Gynec 7 634-645 (June) 1956 [New York]

Symptoms, signs, Papanicolau smears, the Schiller test, cervical biopsy, endocervical curettage, and conization of the cervix were utilized in the diagnosis of cervical carcinoma in 219 women Reliance on symptoms and signs is not enough in diagnosis of early carcinoma of the cervix The Papanicolau smear method is extremely good as a screening procedure but requires tissue verification to confirm the diagnosis and to determine the site and invasiveness of the carcinoma Carcinoma of the cervix frequently occurs in the endocervical canal before it appears on the cervix This fact is one of the drawbacks to the Schiller test and to colposcopy, which are of no use in diagnosing carcinoma hidden above the external os Only rarely can cervical carcinoma be found on the cervix when it cannot be found in the endocervical canal

Endocervical curettage was performed on 168 of the 219 patients with carcinoma of the cervix Nineteen of the 20 patients with stage 0 carcinoma and 93 of the 107 patients with stage 1 carcinoma had endocervical curettage The patients with late stage carcinoma were curetted less frequently Positive endocervical curettings were obtained from 17 of the 19 patients with stage 0 carcinoma and from 88 of the 93 patients with stage 1 carcinoma These results were considerably better than those obtained by cervical biopsy in early diagnosis of cervical carcinoma The combination of endocervical curettage and biopsy of the cervix requires no added effort and is more efficient than is either method alone The combination of these two methods resulted in a positive diagnosis in 94 7% of the patients with stage 0 carcinoma of the cervix, in 98 8% of the patients with stage 1 carcinoma, in 100% of the patients with stage 2, 3, and 4 carcinoma, and in 98 7% of all the patients on whom it was used Conization of the cervix was found to be a more cumbersome technique in early diagnosis of carcinoma of the cervix than endocervical curettage

Cesarean Section Mortality E H Bishop Am J Obst & Gynec 71 1194-1201 (June) 1956 [St Louis]

As a result of improvements in obstetric care, deaths associated with cesarean section have become so rare that no one person or even any one hospital staff has enough experience to realize that preventable deaths still occur frequently enough after cesarean section to constitute an important problem This paper analyzes the maternal deaths associated with the cesarean sections performed in Philadelphia from Jan 1, 1938, to Dec 31, 1953 For comparative purposes, this study was divided into two eight-year periods, 1938-1945 and 1945-1953, because during the second eight-year period an adequate supply of blood from banks was available even in the smaller hospitals and the obstetrician had at his disposal chemotherapeutic and antibiotic drugs covering a wide range of pathogenic organisms There were 146 deaths associated with cesarean section during the 16-year period The fact that 68% of these deaths were classified as preventable induces the author to reemphasize the following important factors 1 An adequate supply of blood for emergency use must be available in every obstetric department Delayed or inadequate blood replacement is particularly dangerous when cesarean section is performed because of either placenta previa or premature separation of the placenta 2 Overconfidence in antibiotic therapy should not be allowed to affect adversely obstetric judgment or surgical technique 3 Anesthesia for a cesarean section must be under the direction of an anesthesiologist, not an obstetric resident Probably even more hazardous is the administration of spinal anesthesia by an obstetrician who has had little experience in anesthesia 4 Heart disease alone is not an indication for cesarean section 5 An elective cesarean section warrants as much preparation as any other major surgical procedure Of the 146 deaths, 46, or 31%, followed a planned cesarean section Twenty-five of these patients who had elective operations died as a result of heart disease, anesthesia, infection or hemorrhage 6 A cesarean section after a period of exhaustion, dehydration, and starvation is hazardous In the fatal cases in which disproportion was the sole indication for the cesarean section, the average duration of labor was 34 hours Procrastination is not synonymous with watchful waiting, and it would seem that 6 to 10 hours of active labor allows time enough to recognize the disproportion 7 Cesarean section as a method of delivery should be limited to those patients in whom it has proved value, but when indicated it should be carried out as promptly as is consistent with the proper preparation of the patient

Transplacental Transmission of Fetal Erythrocytes with Demonstration of Fetal Hemoglobin in Maternal Circulation Y M Bromberg, M Salzberger and A Abrahamov Obst & Gynec 7 672-674 (June) 1956 [New York]

The blood of 72 pregnant women in the last trimester of pregnancy was examined for fetal hemoglobin by the method of Singer and Chernoff, depending on resistance to alkali denaturation In only four women was more than 2% total hemoglobin found, indicating the presence of significant amounts of fetal hemoglobin In two additional pregnant women, highly significant concentrations of fetal hemoglobin were found The first woman was an Rh-negative isoimmunized patient who delivered an erythroblastotic infant Determination of fetal hemoglobin in the maternal blood showed a progressive increase from 3 2% of total hemoglobin at the beginning of the eighth month to 5 2% at the end of the eighth month After the delivery, the mother's blood was tested for fetal hemoglobin at weekly intervals and a steady decrease was observed No significant amounts of fetal hemoglobin were found two months after delivery, although the antibody titers remained elevated The second woman delivered a macerated stillborn fetus There was a steady rise of fetal hemoglobin concentration in the maternal blood from 2 4% of total hemoglobin in the sixth month up to 3 2% of total hemoglobin shortly before the interuterine death of the fetus There was a progressive decrease in fetal hemoglobin after delivery, until a normal level of 1 2% was reached two months later Thus in both patients fetal hemoglobin blood levels rose steadily until the end of pregnancy and decreased progressively after delivery until normal levels were reached two months after the delivery

The oozing of fetal blood across the placenta may lead to deleterious effects in both mother and fetus In cases of blood incompatibility between mother and fetus, the passage of fetal blood through the placenta may induce maternal isoimmunization and the antibody titer may be related to the fetal hemoglobin concentration in the maternal blood It may also be possible that in some rare instances the passage of incompatible fetal blood into the mother may elicit reactions comparable to those observed after incompatible blood transfusions In the fetus the occult blood loss through the placenta may cause various degrees of anemia of the newborn and in rare cases may lead to the death of the fetus in utero

Chronic Shock with Report of Two Cases from the Obstetric Department V C Jensen Ugesk læger 118 477-482 (May 10) 1956 (In Danish) [Copenhagen, Denmark]

Two cases of chronic shock in connection with the hyperemesis of pregnancy are discussed In both cases there was considerable reduction of all the components of the blood, but the reduction of hemoglobin was relatively greater than that of full blood and plasma In the first case the patient had already passed the period of pregnancy when hyperemesis generally occurs The hypovolemia and protein deficiency because of insufficient treatment of the hyperemesis presumably caused the continued vomiting Treatment with transfusion of 2,200 ml of whole blood had a dramatic effect, and the patient was discharged as well two days after treatment ended In the second case, where the patient was in the middle of the period of hyperemesis of pregnancy the improvement after infusion of 2 500 ml whole blood aided the patient over the critical phase and therapeutic abortion was avoided In every case of apparently intractable hyperemesis of pregnancy the possibility of chronic shock must be considered

Diagnosis of Sex Before Birth C J Dewhurst Lancet 1 471-472 (April 21) 1956 [London, England]

The discovery that genetic sex can be diagnosed from the presence of chromatin masses in female nuclei in human tissues suggested that this test might be applied to determine the sex of the fetus before birth Twenty specimens of amniotic fluid were obtained between the 26th and 42nd weeks of gestation by artificial rupture of the membranes or at cesarean section and the centrifuged deposit was examined after staining The sex of the fetus was correctly diagnosed in 18 2 specimens were unsuitable for accurate prediction To test the practicality of this method to determine the sex of the fetus before birth, 20 other pregnant women were selected for abdominal paracentesis between the 32nd and 36th weeks of pregnancy Only 13 suitable samples of amniotic fluid were obtained and the sex of the fetus was predicted correctly in six males and seven females Of the other seven women no amniotic fluid was obtained from three a small amount of bloody fluid from three, and pure blood from one Premature labor (at 36 weeks gestation) resulted in one of these patients Although no serious consequences resulted these incidents seem to indicate that the method involves a small risk, mainly to the fetus and is therefore not recommended for general use to discover the child s sex.

Late Ectopic Pregnancy, with Special Reference to Intraligamentous Pregnancy L R Robey, C O Spann and M Walker J Nat. M A. 48 180-183 (May) 1956 [New York]

The records of all patients with ectopic pregnancy who were treated at the Taborian Hospital Mound Bayou, Miss, during the eight-year period from June 1 1947 to June 1 1955 were reviewed There were 1,794 uterine deliveries including 64 stillborn 22 early ectopic pregnancies 19 of which were ruptured, and 2 late ectopic pregnancies This incidence of one late ectopic pregnancy per 897 deliveries, when compared to Bowens 1 17,173 and Eastmans 1 15 000 deliveries is striking Late extrauterine pregnancy occurs predominantly in Negroes On the basis of literature reports the author stresses the high fetal and maternal mortality rates in late ectopic pregnancy It is exceptional that a viable child will result from an extrauterine pregnancy and the deformity rate in such viable infants is very high Most of the deformities are about the head

The authors present reports of the two late ectopic pregnancies The first was a late abdominal pregnancy with generalized exfoliative dermatitis secondary to sensitization of the mother to the dead fetus The second case represented an intraligamentous pregnancy of two years duration, secondary to a right tubal rupture, in which fetal death occurred 15 months prior to surgery Gross personal neglect was evident in both of these cases There were no maternal deaths The infant was dead in each case There have been no deaths from early or late ectopic pregnancy during the eight years of this study, although many of the patients entered the hospital late after rupture and in poor condition

PEDIATRICS

Mental Ability and School Achievement of Premature Children at 8 Years of Age J W B Douglas Brit. M J 1 1210-1214 (May 26) 1956 [London, England]

The results are described of reading, vocabulary, and pictorial intelligence tests given to a representative group of 407 children weighing 5½ lb (2 495 gm) or less at birth and therefore by international definition, premature, after they had reached the age of 8 years They were compared with those of children weighing more than 5½ lb at birth Previous papers have described the health, the growth, and the age at walking of these two groups Premature children scored less than their controls in each of these tests being proportionately more handicapped in reading than in either word comprehension (vocabulary) or ability to appreciate relationship (pictorial intelligence) The handicaps of premature children did not increase significantly with either falling birth weight or decreasing length of gestation In general, the handicaps found were minor but there was a small, well-defined group of premature children whose prematurity was unexplained either by obstetric abnormality or by the small size of their parents, and who were heavily handicapped in all tests A more intimate and detailed study is needed both to confirm the present observations and if confirmed, to attempt to explain them

Evaluation of a Conditioning Device in the Treatment of Nocturnal Enuresis F C Behrle, M T Elkin and P C Laybourne. Pediatrics 17 849-856 (June) 1956 [Springfield, Ill]

In 12 boys and 8 girls between the ages of 5 and 14 years with nocturnal enuresis and widely varying degrees of emotional maladjustment, an apparatus of the type described by Seiger in 1952 was used It consisted of a rubber pad placed on the patient s bed and connected to an electric bell to awaken the patient at onset of urination Both parents and children were instructed in the working of the apparatus, and wherever feasible the child was encouraged to take over the full responsibility for management of his own treatment A record of daily progress was kept for each patient and the treatment closely supervised by daily telephone conversations with the mother The apparatus was removed from the bed when a child had been dry for 7 consecutive nights and removed from the home after about 14 consecutive dry nights

Six children maintained completely dry beds for periods of 18 to 39 months Two of these had relapsed after the initial treatment period but remained dry 18 and 19 months respectively, after second courses of treatment Nine patients were improved in that they were wetting no oftener than once a month in the least successful case, and in that only several episodes of wetting occurred in the course of two years in the most successful case Four patients had temporary favorable responses lasting for several weeks or months but subsequently reverted to previous wetting habits In one of five children who were frightened by the bell the fear was so marked that treatment had to be discontinued after one week Of 11 children with moderate degrees of emotional disturbance, 7 were benefited and 4 were not Of seven children with signs of serious emotional disturbance six were benefited and one was not The method, therefore, proved effective regardless of the emotional status of the patients before the treatment None of the children appeared to suffer significant undesirable effects, and beneficial effects other than improvement of the enuresis appeared to be confined to the subjective impressions of some of the mothers Adverse behavior observed in the course of the treatment indicated a need for judicious supervision of therapy along with the cooperation of patients The authors believe that the conditioning apparatus acted as a priming" device that initiated control of the enuresis the continuation of which was dependent on the rewards of parental approval, greater social acceptability, and the satisfaction of accomplishment.

Hereditary Hematuria, Nephropathy and Deafness Preliminary Report G S Sturtz and E C Burke New England J Med 254 1123-1126 (June 14) 1956 [Boston]

The term "hereditary hematuria nephropathy and deafness" is proposed for a syndrome the occurrence of which is described in a 7-year-old boy The family history revealed that the patient s mother and 10 other members of his family have apparently had this disease. It appears to be a definite genetic entity characterized in males by the presence of hematuria, albuminuria, cylindruria usually nerve deafness (due to involvement of the auditory nerve or the organ of Corti), and progressive renal disease death occurs at an early age The disease is characterized in females by the presence of hematuria, albuminuria, cylindruria, and occasionally nerve deafness the course of the disease is relatively benign except during pregnancy, when hypertension, edema, and other signs of toxemia may occur Hematuria may be intermittent. Congenital abnormalities of the eye are occasionally present. Transmission of the disease in the patient's family and in the families reported on by other workers was by the females, both affected and nonaffected Further study of many kinsmen of the authors' patient is necessary before one can accurately assess inheritance

DERMATOLOGY

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Plaquenil (7-chloro-4-[4-(N-ethyl-N-β-hydroxyethylamino)-1-methylbutylamino] quinoline) is less toxic than related antimalarials such as quinacrine and chloroquine Like these drugs it has been used in discoid lupus erythematosus The author presents observations on seven patients with chronic resistant lupus erythematosus who were treated with from 1 to 3 tablets of Plaquenil daily Only one of these patients, who had been given 3 tablets a day, experienced gastrointestinal disturbances Treatment was suspended for two weeks and then recommenced with 1 tablet daily After one week with complete tolerance of this dosage it was increased to 2 tablets a day, and there were no further complaints The dose was continued for three months At this time there was more than 50% improvement All seven patients showed improvement or complete involution of their lesions Plaquenil can produce further improvement, sometimes substantial, after the effects of sister antimalarial drugs have come to a standstill One naturally speculates as to whether quinacrine and chloroquine would likewise cause continued improvement after the use of Plaquenil

***Plaquenil in the Treatment of Discoid Lupus Erythematosus* A Preliminary Report H M Lewis and G M Frumess A M A Arch Dermat 73 576-581 (June) 1956 [Chicago]**

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Plaquenil was supplied in 200-mg tablets The initial dosage was 2 tablets (400 mg) after meals and at bedtime If this was tolerated and there was evidence of improvement, rapid stepwise reduction with a daily four-dose schedule was attempted by omitting one tablet (200 mg) every third to fifth day If signs of severe intolerance developed, medication was abruptly discontinued until all side-effects subsided and was then resumed by starting with one tablet (200 mg) daily and adding one tablet every second or third day, depending upon side-effects and therapeutic response It was found that Plaquenil is a satisfactory drug for the treatment of discoid lupus erythematosus It is apparently of benefit to patients who demonstrate inadequate therapeutic response to currently available medicaments and to patients who discontinue use of those medicaments because of intolerable side-effects In previously untreated patients it appears to produce more rapid clearing of visible lesions Many patients on a high-dosage schedule of Plaquenil suffer diarrhea, intestinal cramps, and nausea Experience now indicates that a lower incidence of side-effects could be attained with a lower initial dosage

Flea Infestation as a Cause of Papular Urticaria A Preliminary Investigation R M Bolam and E T Burtt Brit M J 1 1130-1133 (May 19) 1956 [London, England]

Thirty children between the ages of 3 months and 7 years with a distressing and persistent papular urticaria were studied in the hospital and in their homes Fleas were found or were hatched out from dust samples collected in the homes of 21 of these children The dust samples were incubated under standard conditions of humidity and temperature Five species of fleas were found causing infestation cat-fleas in 15 cases, hen fleas in 3, and pigeon flea, house-martin flea, and human flea in one each. Pets were kept in 20 of the homes More than one person was affected by papular urticaria in several of the homes Control measures against fleas were recommended, including the use of insecticides to clear the animals of fleas and of arranging the pets sleeping quarters and general discipline so as to reduce the chances of a flea infestation These resulted in a clearance of the eruption and kept 14 of the 21 young patients free Most cases of papular urticaria can be explained on the basis of a parasitic infestation even though this may be obscure at first sight Careful history-taking and investigations extending to the patient's home are necessary before the facts can be brought to light and complete relief ensured Pets as well as patients must be treated

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The authors studied the proteolytic effect of trypsin in 80 patients with cutaneous or genital infections Eight patients had varicose ulcers, 6 had ulcerated and diffuse epithelioma, 2 cutaneous primary multiple gangrene, 2 decubitus lesions, 15 bullous streptococcic infection, 12 aspecific chronic urethritis, 15 gonococcic cervicitis, and 20 nongonococcic cervicitis The drug was combined with penicillin Combination was at the lyophiid status Just before use, the combination was dissolved with a sterile solvent at 7 2 pH The combination was applied directly to the affected areas Tolerance was perfect in all cases Chronic varicose ulcers healed after two or three days of treatment Results were poor in cases of epithelioma or gangrene The drug accelerates recovery in cases of bullous streptococcic infection In these cases, after one or two days of treatment with the drug, treatment with yellow mercury oxide was instituted The drug accelerated recovery in cases of cervicitis that were treated basically with penicillin or streptomycin The results in urethritis were uncertain The drug frees the lesions from the pseudomembrane and the exudates that hinder the healing process The drug could have a better effect on cervicitis if its contact with the diseased tissue could be prolonged

THERAPEUTICS

Clinical Observations on a New Substance with Central Stimulating Effect C V Morpurgo Minerva anestesiol 22 110-114 (March) 1956 (In Italian) [Turin, Italy]

Ritalin, methyl 2-(piperidyl) phenylacetate hydrochloride, was given to a group of patients who underwent minor surgical interventions and a group who underwent more important interventions The drug has a central stimulating effect evident at the level of the cortex It has no effect on the mesencephalic, bulbar, and spinal centers Its side effects are not significant from a clinical point of view Parasympatholytic substances improve the psychomotor effect of the drug Sympatholytic substances diminish it Twenty to 30 mg of Ritalin obliterates the effects of anesthesia obtained with barbital The patient wakes up feeling good In a few minutes he is able to get up and sit down by himself and possibly to cooperate Drowsiness at times continues for 10 or more minutes Euphoria and logorrhea are frequent Vomiting and nausea are exceptional Thirst and dry mouth are present if atropine has been given Doses up to 50 mg of Ritalin nullify the effect of more profound anesthesia in major surgical intervention The return of reflex movements is fast Thirty to 40 minutes must pass before the patient can cooperate

An average of 4 2% higher pulse rate was noticed The pulse rate increased in 71% of the patients in the second group and 31% in the first group Intravenous injections of Ritalin did not cause any variation in the blood pressure Pressure values decreased 40 mm Hg in one patient with hypertension There is no danger and the results are better when the drug is injected slowly in two or three minutes Ritalin may cause epilepsy if there are irritations in the cerebral cortex Caution should be exercised in patients with arteriosclerosis, hyperthyroidism, and myocardial affections

BOOK REVIEWS

Doctor and Patient and the Law By Louis J Regan M D LL.B Professor of Legal Medicine College of Medical Evangelists Los Angeles. Third edition Cloth $12.50 Pp 716 C V Mosby Company 3207 Washington Blvd St. Louis 3 1956

This third edition is in no sense a revision of the previous editions With one very minor exception all the text material found in the second edition is also found here Too the footnotes found in the second edition are found here additional references being identified by adding (a) (b) (c), etc , to the last numbered footnote in any particular section This edition is 147 pages longer because of the more extensive text discussion and the addition of several new topics A section on grievance committees, for example discusses the limitations on the recommended scope of activity of such a committee functioning at the county society level Attention is called to the fact that such a committee must do more than merely whitewash the physician " It concludes quite properly that perhaps such a committee should limit itself to disputes about fees and not attempt to evaluate controversies involving the failure of a physician to use due care in the course of his practice Following this discussion is a report on the way in which one grievance committee functioned in its routine handling of a claims prevention program There is also a helpful discussion of the problem of experimentation concluding with the recommendations of the Judicial Council of the American Medical Association with regard to human experimentation Other new topics covered are the law of public health, feticide infanticide and concealment of births or deaths The second edition of this book has been a standard reference since its publication in 1949 principally with respect to the law of malpractice The same high regard undoubtedly will attach to the third edition, because it is all the second edition was in addition to being a more up-to date presentation and because it covers some valuable new material This book remains one of the best reference books a physician or lawyer can find on general problems of legal medicine It can also serve as a textbook on that subject for use by either medical students or law students

Pulmonary Carcinoma Pathogenesis Diagnosis, and Treatment Edited by Edgar Mayer M D and Herbert C Maier M D Cloth $15 Pp 540 with 182 illustrations New York University Press Washington Sq New York, N Y distributed by J B Lippincott Company, 227-231 S Sixth St Philadelphia 5 Pa. Pitman Medical Publishing Co Ltd., 39-41 Parker St Kingsway London, W C.2 England, 1956

Because of the tremendous increase in the incidence of lung cancer this monograph is timely It is well written, and there is a complete consideration of the subject from every aspect Various contributors have written chapters and this adds greatly to the value of the book The initial chapter by C P Rhoads on modern concepts of cancer research is well done The chapter on the biology of cancer with special reference to lung cancer is admirably written by W E Smith Environmental and occupational factors in the development of lung cancer are considered by Dr E C Hammond and Dr Willard Machle The chapter on pathological aspects of the lung which was written by A A Liebow is complete and well illustrated In addition to frank cancer of the lung atypical proliferation in carcinoma in situ is well described The clinical aspects of the disease are described by internists, including the senior editor All the clinical aspects of the disease aside from the roentgen diagnosis which is well presented by R S Sherman, are considered in this chapter All phases of bronchoscopic examination are considered in a chapter by the junior editor The chapter on exfoliative cytology is by G N Papanicolaou and A A Liebow Other excellent chapters include those on the search for the early case, differential diagnosis, functional aspects of pulmonary disease as applied to the management of lung cancer the medical management of the surgically incurable patient, secondary cancers of the lung, the psychological aspects of lung cancer, benign tumors of the lung, benign and malignant tumors of the trachea tumors of the pleura and the outlook for cancer Surgical therapy is discussed by the junior editor from a general standpoint without details of operative technique Because many cases of lung cancer are inoperable, such palliative methods of treatment as radiotherapy and the use of radioisotopes are discussed in detail Although chemotherapy is discussed sufficient emphasis is not placed on its value in the treatment of lung cancer Every practitioner of medicine who is concerned with the treatment of adults should have this book in his library

Electrocardiography Fundamentals and Clinical Application By Louis Wolff M.D Assistant Clinical Professor of Medicine Harvard Medical School Boston Second edition Cloth $7 Pp 342 with 199 illustrations. W B Saunders Company 218 W Washington Sq., Philadelphia 5 7 Grape St Shaftesbury Ave., London W C.2 England 1956

In this second edition Dr Wolff has chosen the conservative approach and covered the subject in the conventional manner The book is divided into three parts dealing with the basic principles of electrocardiography clinical electrocardiography, and normal and abnormal cardiac mechanisms In the last section the arrhythmias and the effects of such drugs as digitalis and quinidine are described The author was tempted to include a section on vectorcardiography but decided against it This was probably a wise decision, because the book in its present form is written primarily for the student or physician who has had little or no previous knowledge of the subject. Several excellent monographs on vectorcardiography are already available for the advanced student. The text is well written and clear reflecting the author s many years of teaching electrocardiography The illustrations are good There is no bibliography This book is recommended as an elementary textbook for medical students and as a reference book for the general practitioner

Basic Otolaryngology By Francis L Lederer B Sc. M D F.A C S., Professor and Head of Department of Otolaryngology University of Illinois College of Medicine Chicago and Abraham R Hollender M.Sc. M.D., F.A C.S Clinical Professor of Otolaryngology University of Miami School of Medicine Miami Beach Fla. Fourth edition Cloth. $6 75 Pp 442 with illustrations F A Davis Company 1914-16 Cherry St. Philadelphia 3 1956

Both authors of this book have spent many years practicing and teaching Since trying to pass on one s knowledge to others is one of the best paths to perfection in any art or science, we have here the 'boiled down" results of vast experience plus the mellowing influence of reflection The book begins with general considerations Sections 2 to 7 deal with the nose sinuses, mouth, pharynx, trachea, bronchi and esophagus seriatim Section 7 on the ear is particularly well done and gives much more than one can expect in a textbook that does not pretend to be exhaustive The authors have not forgotten that much information can be derived from the proper use of tuning forks which is seldom stressed in the literature of today The complications of chronic otitis in the brain labyrinth, and great vessels are well set forth Section 6 on the larynx and lower airways is beautifully illustrated by colored plates, and there is an excellent chapter on speech and voice Antibiotics and chemotherapy are well described but they are, moreover clinically tested which brings greater practical value than mere academic discussion could do This volume provides much concise information not only for students and general physicians but also for otolaryngologists, who should derive great satisfaction from the clear and authoritative presentation of the subject

More Than Pregnancy By Marion Phillips Cloth $3 Pp 178 with illustrations Coward McCann Inc., 210 Madison Ave New York 16 1955

This book for expectant parents was not written by a physician or a nurse the author, the mother of two children is the creator of Marion Phillips Maternity Preparations and the owner of Marion Phillips Shops The book is divided into nine chapters, the longest of which is concerned with maternity clothes Most of the illustrations in the book are in this chapter We are told that in 1946, when the maternity business" was disease in the patient's family and in the families reported on by other workers was by the females, both affected and nonaffected Further study of many kinsmen of the authors' patient is necessary before one can accurately assess inheritance

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This third edition is in no sense a revision of the previous editions With one very minor exception all the text material found in the second edition is also found here Too the footnotes found in the second edition are found here additional references being identified by adding (a) (b), (c), etc , to the last numbered footnote in any particular section This edition is 147 pages longer because of the more extensive text discussion and the addition of several new topics A section on grievance committees for example discusses the limitations on the recommended scope of activity of such a committee functioning at the county society level Attention is called to the fact that such a committee must do more than merely "whitewash the physician " It concludes quite properly that perhaps such a committee should limit itself to disputes about fees and not attempt to evaluate controversies involving the failure of a physician to use due care in the course of his practice Following this discussion is a report on the way in which one grievance committee functioned in its routine handling of a claims prevention program There is also a helpful discussion of the problem of experimentation, concluding with the recommendations of the Judicial Council of the American Medical Association with regard to human experimentation Other new topics covered are the law of public health, feticide infanticide, and concealment of births or deaths The second edition of this book has been a standard reference since its publication in 1949, principally with respect to the law of malpractice The same high regard undoubtedly will attach to the third edition, because it is all the second edition was in addition to being a more up-to date presentation and because it covers some valuable new material This book remains one of the best reference books a physician or lawyer can find on general problems of legal medicine It can also serve as a textbook on that subject for use by either medical students or law students

Pulmonary Carcinoma: Pathogenesis Diagnosis and Treatment Edited by Edgar Mayer M D., and Herbert C Maier M D Cloth $15 Pp 540 with 182 illustrations New York University Press Washington Sq New York, N Y distributed by J B Lippincott Company 227-231 S Sixth St, Philadelphia 5 Pa. Pitman Medical Publishing Co., Ltd 39-41 Parker St Kingsway London W C 2 England 1956

Because of the tremendous increase in the incidence of lung cancer this monograph is timely It is well written, and there is a complete consideration of the subject from every aspect Various contributors have written chapters, and this adds greatly to the value of the book The initial chapter by C P Rhoads on modern concepts of cancer research is well done The chapter on the biology of cancer with special reference to lung cancer is admirably written by W E Smith Environmental and occupational factors in the development of lung cancer are considered by Dr E C Hammond and Dr Willard Machle The chapter on pathological aspects of the lung which was written by A A Liebow is complete and well illustrated In addition to frank cancer of the lung atypical proliferation in carcinoma in situ is well described The clinical aspects of the disease are described by internists, including the senior editor All the clinical aspects of the disease aside from the roentgen diagnosis, which is well presented by R S Sherman are considered in this chapter All phases of bronchoscopic examination are considered in a chapter by the junior editor The chapter on exfoliative cytology is by G N Papanicolaou and A A Liebow Other excellent chapters include those on the search for the early case, differential diagnosis functional aspects of pulmonary disease as applied to the management of lung cancer, the medical management of the surgically incurable patient, secondary cancers of the lung, the psychological aspects of lung cancer, benign tumors of the lung benign and malignant tumors of the trachea, tumors of the pleura and the outlook for cancer Surgical therapy is discussed by the junior editor from a general standpoint without details of operative technique Because many cases of lung cancer are inoperable, such palliative methods of treatment as radiotherapy and the use of radioisotopes are discussed in detail Although chemotherapy is discussed sufficient emphasis is not placed on its value in the treatment of lung cancer Every practitioner of medicine who is concerned with the treatment of adults should have this book in his library

Electrocardiography Fundamentals and Clinical Application By Louis Wolff M.D Assistant Clinical Professor of Medicine Harvard Medical School Boston Second edition Cloth. $7 Pp 342 with 199 illustrations. W B Saunders Company 218 W Washington Sq Philadelphia 5 7 Grape St Shaftesbury Ave London W C.2, England 1956

In this second edition Dr Wolff has chosen the conservative approach and covered the subject in the conventional manner The book is divided into three parts dealing with the basic principles of electrocardiography, clinical electrocardiography and normal and abnormal cardiac mechanisms In the last section the arrhythmias and the effects of such drugs as digitalis and quinidine are described The author was tempted to include a section on vectorcardiography but decided against it This was probably a wise decision, because the book in its present form is written primarily for the student or physician who has had little or no previous knowledge of the subject. Several excellent monographs on vectorcardiography are already available for the advanced student. The text is well written and clear, reflecting the author s many years of teaching electrocardiography The illustrations are good There is no bibliography This book is recommended as an elementary textbook for medical students and as a reference book for the general practitioner

Basic Otolaryngology By Francis L. Lederer B.Sc. M.D., F.A C S Professor and Head of Department of Otolaryngology University of Illinois College of Medicine Chicago and Abraham R Hollender M.Sc. M.D F.A C S., Clinical Professor of Otolaryngology University of Miami School of Medicine Miami Beach Fla. Fourth edition Cloth $6 75 Pp 442 with illustrations F A Davis Company 1914-16 Cherry St. Philadelphia 3 1956

Both authors of this book have spent many years practicing and teaching Since trying to pass on one s knowledge to others is one of the best paths to perfection in any art or science, we have here the boiled down results of vast experience plus the mellowing influence of reflection The book begins with general considerations Sections 2 to 7 deal with the nose sinuses mouth, pharynx, trachea bronchi, and esophagus seriatim Section 7 on the ear is particularly well done and gives much more than one can expect in a textbook that does not pretend to be exhaustive The authors have not forgotten that much information can be derived from the proper use of tuning forks, which is seldom stressed in the literature of today The complications of chronic otitis in the brain, labyrinth, and great vessels are well set forth Section 6 on the larynx and lower airways is beautifully illustrated by colored plates and there is an excellent chapter on speech and voice Antibiotics and chemotherapy are well described but they are moreover clinically tested, which brings greater practical value than mere academic discussion could do This volume provides much concise information not only for students and general physicians but also for otolaryngologists who should derive great satisfaction from the clear and authoritative presentation of the subject

More Than Pregnancy By Marion Phillips Cloth $3 Pp 178 with illustrations Coward McCann Inc., 210 Madison Ave New York 16 1955

This book for expectant parents was not written by a physician or a nurse, the author, the mother of two children, is the creator of Marion Phillips Maternity Preparations and the owner of Marion Phillips Shops The book is divided into nine chapters the longest of which is concerned with maternity clothes Most of the illustrations in the book are in this chapter We are told that in 1946, when the maternity business" was still practically in its infancy, it was a 10 million dollar-a-year affair The author discusses the choice of a physician, and she offers intelligent explanations of old and new wives' tales, the cost of having a baby, clothes for the newborn baby, and other important aspects of planning for the arrival of a baby The book is well written in an interesting style, the information presented is correct, and the advice given is sensible and practical The book can definitely be recommended

Health Observation of School Children A Guide for Helping Teachers and Others to Observe and Understand the School Child in Health and Illness By George M Wheatley, M D, M P H Third Vice-President Health and Welfare, Metropolitan Life Insurance Company, and Grace T Hallock Second edition Cloth $6 50 Pp 488 with 86 illustrations by Barbara Pfeiffer Blakiston Division, McGraw-Hill Book Company Inc, 330 W 42nd St New York 36, 95 Farringdon St London, E C 4 England, 1956

This extensively revised edition follows the general format of the earlier book The principal body systems and diseases that prevent their normal operation are described in sufficient detail to permit the teacher, to whom the volume is primarily directed, to benefit from it, both as a resource volume for general health education and as an aid in health evaluation of pupils The terminology used in the book is accurate but not too technical in nature Probably many parents with average education would find much of the discussion of interest and value An attractive feature is the inclusion of colored plates showing the teacher how much can be noted as the result of careful observation of individual pupils The book has an adequate number of drawings of the principal body systems There are also informative charts At the end of each chapter, questions are posed to test appreciation of the facts that have been presented In addition, various related activities are suggested to impress the facts more firmly Each chapter closes with a list of suggested references This volume should prove as useful and popular for teacher training or for the teacher already in a school position as the first edition did

Cardiovascular Innervation By G A G Mitchell O B E T D, M B, Professor of Anatomy and Director of Anatomical Laboratories in University of Manchester, Manchester England Foreword by Sir Geoffrey Jefferson C B E M S, M Ch Cloth $11 Pp 356 with 217 illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves Baltimore 2, E & S Livingstone Ltd, 16 and 17 Teviot Pl Edinburgh 1 Scotland 1956

Since the author is one of the most careful and learned anatomists, the appearance of a book by him on the anatomy of the nerve supply of the cardiovascular system is most welcome The subject is covered in a desultory fashion in many textbooks, but it is rarely presented in an orderly and detailed manner, as Mitchell has done and done beautifully The book covers the entire innervation, macroscopic and microscopic, of the cardiovascular system, including good descriptions of central autonomic representation The book is a textbook in that it has an easily discernible arrangement and the material is clearly and simply presented However, most physicians and surgeons will probably use it as a reference book It should serve admirably in either case The make-up of the book is excellent, and the clarity of the illustrations is especially to be commended Even the labels in the diagrams can be read without a magnifying glass, triangulation, and turning the book upside down The references are carefully chosen and obviously have been read by the author He is careful enough in his use of them not to resort to "et al" All physicians dealing with the cardiovascular system should profit by the use of this book

Modern Operative Surgery in Two Volumes Volume I Edited by the late G Grey Turner, LL D, D Ch, M S, and Lambert Charles Rogers V R D M Sc, M D, Professor of Surgery, University of Wales, Cardiff With foreword by Sir Gordon Gordon-Taylor, K B E C B M D Fourth edition Cloth $15 Pp 1229, with 476 illustrations Paul B Hoeber Inc (medical book department of Harper & Brothers), 49 E 33rd St, New York 16 1956

The appearance of this fourth edition, published after the death of the senior author, indicates that this work has been popular in England, but failure to find a single copy of the third edition in the libraries of six medical schools is evidence that it has not been widely read by American surgeons The book is a comprehensive presentation of "the whole range of modern surgical operations," with a discussion of the indications for operation, preoperative and postoperative care, and operative technique The general organization of the material remains unchanged, and volume 1 includes sections on orthopedic neural, thoracic, cardiovascular, and abdominal surgery, as well as sections on the conservative management of nonpulmonary tuberculosis, malignant disease, and diseases of the breast The sections on hernias, diseases of the rectum and anus, and diseases of the neck, in addition to other surgical specialties, will be found in volume 2 Each section has been revised, but the most extensive revision has been in the discussion of cardiovascular surgery, where a description of most of the well established procedures may be found Such new developments as hypothermia, open heart surgery, and resection and grafting of the aorta are not discussed in detail The entire text is well written, and there are illustrations of many of the techniques The same general material may be found in textbooks by American authors, but this work would undoubtedly become increasingly popular if it were readily available for reference

Body Fluids in Surgery By A W Wilkinson, Ch M, F R C S E Assistant Surgeon, Aberdeen Royal Infirmary and Royal Aberdeen Hospital for Sick Children Aberdeen Scotland Cloth $4 Pp 212, with 7 illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves Baltimore 2 E & S Livingstone Ltd, 16 and 17 Teviot Pl Edinburgh 1 Scotland 1955

The subject of electrolyte balance, particularly as it applies to surgery, is difficult to present The complexity of the subject and its numerous facets make it almost impossible to apply routine answers or to use short cuts The author has done an admirable job in presenting this involved subject in a pithy manner He does not minimize the importance of clinical experiences, which he feels go hand in hand with an understanding of the physiology of body fluids Therapeutic simplicity is sought, but this cannot be attained until the clinician understands the speed and delicacy of the complicated compensatory responses that follow the loss of body fluids Chapter 7, which deals with acidosis and alkalosis, is especially well written This book can be recommended to anyone interested in the subject of body fluids and electrolyte balance

Chemical Safety Supervision By Joseph Guelich Safety Manager, General Chemical Division Allied Chemical and Dye Corporation New York Cloth $4 50 Pp 221 with illustrations Reinhold Publishing Corp 430 Park Ave, New York 22, Chapman & Hall Ltd, 37-39 Essex St Strand London W C 2 England, 1956

This easy-to-read volume may be considered as a safety handbook for supervisors in chemical manufacturing plants or laboratories, but it may also be read with interest and profit by chemical plant employees or laboratory technicians The author has spent much time as a safety specialist for various chemical firms and government departments, and this experience is reflected in the thorough and practical way in which he discusses the problem of safety The volume is divided into short chapters, most of them dealing with different aspects of safety involved in the manufacture, handling, and storage of chemicals Because of the practical answers it gives to most of the problems that are likely to be encountered, this book should be read by all those who supervise or plan to supervise in the manufacture or use of chemicals

Modern Public Health for Medical Students By I G Davies M D F R C P D.P H Professor of Public Health and Preventive Medicine University of Leeds Leeds England Cloth $6,75 Pp 487 with 50 illustrations Edward Arnold & Co, 41-43 Maddox St London, W 1, England, Williams & Wilkins Company Mount Royal and Guilford Aves Baltimore 2 1955

This volume is a useful addition to the list of good British textbooks on public health It should be of great value to the British reader, as it brings together in clear and succinct form a mass of detail regarding the responsibilities of the physician in his relations with the government The duties and services of the many public health and medical care programs are clearly explained, and instructions are given as to what procedures the physician must follow to obtain these services for his patient This volume is of less practical value to the reader in the United States, as it contains only a few sections of basic principles and general information Its chief value in this country will be to give the reader an insight into the British program

QUERIES AND MINOR NOTES

EMERGENCY CARE PLANNING

To THE EDITOR —*The local county medical society is interested in setting up a program of education for law enforcement officers funeral homes and ambulance carriers for the improvement of handling and transporting injured people to the hospital I would like to be put in touch with someone who might have a program of this nature We have a large number of highway accidents as our town is bisected by two main state highways At present we have what is known as fast and courteous service and what we are trying to do is give necessary training in the use of splints and other first-aid measures as might be adapted to ambulance transportation We feel that we would not only be greatly reducing such hazards as shock but also could be using this as a fairly sound public relations endeavor*

Joseph G Springer M D Bellefontaine Ohio

ANSWER —Successful emergency care planning has been approached in several ways the most common of which are (1) plans worked out (medical group taking initiative) with those members or agencies of the community whose functions could be of assistance such as police ambulance drivers and responsible first-aid trained persons (2) emergency medical care proper transportation of the injured and hospital emergency handling as a plan strictly between hospital staffs and physicians completely independent of other groups and (3) a plan such as 2 above integrated with the over-all community Red Cross or civil defense disaster plan depending upon which is more active in the particular community As for the more efficient handling and transportation of injured persons in the present plan the local Red Cross chapter should be in a position to provide first-aid training for selected people If not then any member of the medical society could do so The Standard Red Cross first-aid textbook would be a valuable guidance in planning the course

FIRST AID WHILE ON A TRIP

To THE EDITOR —*I am licensed to practice medicine only in Massachusetts On an automobile trip I stop at the home of a niece in New Jersey I have with me a first aid kit containing such medicaments as penicillin Aureomycin and analgesics for use of myself and my family during the trip If I treat my wife or children in any state except Massachusetts for example with penicillin for a severe sore throat and a reaction ensues requiring hospitalization have I violated the law by practicing medicine in that state without a license? If on arrival in New Jersey I find the niece has what looks like a streptococcic sore throat and I give her some of my Aureomycin for that condition without charge of any kind am I practicing medicine in New Jersey without a license? If I give some to my wife or children for a good indication while outside of Massachusetts, can I be prosecuted for practicing medicine in that state without a license?*

Arthur J Hadler M D Brookline Mass

ANSWER.—Whether a physician licensed only in Massachusetts may treat all members of his family outside of the state of Massachusetts technically would depend on the statutes of that particular state It is doubtful that the laws of any state would be so interpreted as to prevent a physician under such circumstances from administering drugs to all members of his immediate family any more than the administration of an aspirin tablet by a layman to an ill child would be considered the practice of medicine In New Jersey the Medical Practice Act specifically excepts the situation posed by the inquirer Section 45 9 21 c provides that A physician or surgeon of another state of the United States and duly authorized under the laws thereof to practice medicine or surgery therein if such practitioner does not open an office or place for the practice of his profession in this state is excepted Consequently a physician licensed only in another state may treat persons in New Jersey providing he does not maintain an office or place of business in New Jersey

SHOULD A CARDIAC TAKE A TRIP TO EUROPE?

To THE EDITOR —*A 67 year old man had a severe coronary occlusion with infarction in January 1954 which left him with a scar some cardiac enlargement blood pressure of 110/70 mm Hg (prior to the thrombosis 135/85 mm Hg) and a significantly abnormal electrocardiogram He is having minor angina pectoris on exertion excitement or when exposed to cold weather and, rarely episodes of congestive heart failure with pulmonary edema which subside after two or three hours He is working (desk job) on a limited scale Would it be too much of a risk for him to take a three-week trip to Europe in a pressurized plane with a very modest schedule that does not include much sight-seeing?*

Leopold E Wexberg M D Washington D C

ANSWER —It is hazardous to pass judgment regarding the ability of a patient such as the one described to withstand a three-week trip to Europe Much depends on whether his trip will contain episodes relating to business or other situations that will put him under excessive emotional or physical stress Unfortunately these cannot always be predicted in advance A decision of this type depends somewhat on the philosophy of the patient He should understand that he may develop congestive failure or acute myocardial infarction abroad, but that this might also occur at home If the condition of the patient seems reasonably good and the patient desires to travel on a limited scale the decision should rest with the patient. However he should be given instructions as to what steps to take in the event of a change in his condition. Among the most helpful steps is to provide him with a list of reliable internists or cardiologists practicing in the main cities that he plans to visit This will insure his receiving good care in the event of the development of a complication

ALLERGY TO SUNLIGHT

To THE EDITOR —*A 30 year-old man for the first time last summer began to have dermitis that showed up as soon as he took off his shirt and exposed his back to sunlight The result was prickly heat sensations and stinging with small white firm areas the size of a pea and slightly elevated These areas and sensations disappeared a few hours after he put his shirt back on This condition developed again today when he took his shirt off and was exposed to sunlight What is the treatment for such a case?*

H E O Neal M D Tipton Iowa

ANSWER —The simplest way to prevent allergy to light is to use a screening agent One of the best of such chemicals is p aminobenzoic acid or its ester It can be used in concentrations varying from 1 to 10% The weaker strengths are marketed commercially under such trade names as Tartan or Skolex More concentrated preparations are more effective The chemical should be dissolved in alcohol then diluted with water or with an ointment base such as Unibase Recent developments have indicated that certain chemicals taken internally notably the antimalarial drugs have an effective preventive action

POLIOMYELITIS IMMUNIZATION

To THE EDITOR —*Is a child who has had paralyzing anterior poliomyelitis immune to all three types of poliomyelitis virus or should he be given the vaccine the same as other children?*

Howard H Ingling, M D Springfield, Ohio

ANSWER —The evidence indicates that a child recovering from poliomyelitis caused by one type of poliomyelitis virus is not assured immunity to the other types For this reason it would seem wise to proceed with vaccination as with other children

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The answers here published have been prepared by competent authorities They do not however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address but these will be omitted on request services for school children, workers, and their families, and dental association Such information has generally been lacking

WHO, of which the bureau is a regional office, has taken advantage of the existence of certain well-developed laboratories and organized a world network of regional laboratories designated as poliomyelitis centers The laboratories have agreed to carry out the isolation, typing, and further study of poliomyelitis virus The findings are pooled through WHO as the world clearinghouse for public health information

The possibility of establishing pilot plants for demonstration purposes in the fluoridation of water is being investigated Such projects would be used as a guide in the curriculums of the public health schools of Brazil, Mexico, and Chile and would serve especially for training waterworks operators, hydraulic and sanitary engineers, dentists, epidemiologists, sanitarians, and other interested public health personnel

MISCELLANY

The Federal Civil Defense Administration has contracted with Michigan State University to conduct a coast-to-coast survey of the effectiveness of civil defense operations in relation to community organization and local governmental structure Dr Louis B Newman, chief of physical medicine and rehabilitation at the Chicago VA Research Hospital, has been awarded the John E Davis plaque by the Association for Physical and Mental Rehabilitation for "distinguished leadership and outstanding service" The World Health Organization has recommended a world research program on the problem of insect resistance to insecticides The WHO expert committee that recently met in Geneva examined the methods of detecting and measuring insecticide resistance and advised that WHO undertake to circulate research information as soon as it becomes available Surplus property for which the federal government paid $55,304,842 was made available to the states for educational and public health purposes during April, May, and June by the Department of Health, Education, and Welfare

PERSONNEL

The new surgeon general of the Public Health Service is, as his predecessor was, a career officer in the PHS He is Dr Leroy E Burney, who has served for the past two years as deputy chief of the Bureau of State Services, which administers the various PHS grants-in-aid programs to the states President Eisenhower gave him a recess appointment, subject to confirmation of the 85th Congress, which meets next January Dr Burney succeeds Dr Leonard A Scheele, who has resigned effective Aug 31 to join the Warner-Lambert Pharmaceutical Co Dr Burney, a native of Burney, Ind, received his medical degree from Indiana University in 1930 and was commissioned in the regular corps of the PHS in 1932 From 1945 until he was called to Washington two years ago, he served as Indiana State Health Commissioner Dr Scheele, in a note to PHS personnel on his final day as surgeon general, commented, "Such accomplishments as have been made would not have been possible without the devoted efforts of the staff of the Public Health Service—both by the commissioned corps and by the many thousands in civil service" Dr Ivan F Bennett has been appointed chief of psychiatric research in the psychiatry and neurology service of the Veterans Administration, he comes to the agency's central office from the VA hospital at Coatesville, Pa He succeeds Dr Richard L Jenkins, who has been named director of the VA psychiatric evaluation project with headquarters at Mount Alto Hospital, Washington

OMNIBUS HEALTH BILL

On another major health bill enacted by the recent Congress, the President expressed satisfaction This is the five-part "little omnibus" health measure The first three sections authorize traineeship grants for training public health specialists, for training professional nurses as teachers, administrators, and supervisors, and for educating practical nurses Part 4 extends the Hill-Burton hospital construction program, now in its 10th year, for another two years beyond next July 1 This, said the President, will assure continuity of the program pending a careful review of its provisions Concerning the fifth part, for special projects grants for mental health studies and demonstrations, President Eisenhower said, "With half of the hospital beds in the country occupied by mental patients, improved institutional care will bring rewards in the reduction of human suffering as well as in easing the financial burden of long-term hospitalization"

PUBLIC HEALTH SERVICE GRANTS

Nine awards totaling $367,182 have been made to eight institutions to conduct research and demonstrations in hospital service and administration The research, aimed at improving the efficiency of hospital and health services, is sponsored by the division of hospital and health facilities, Public Health Service (the Hill-Burton program) The largest grant, $64,874 goes to the Council of Jewish Federations and Welfare Funds of New York City for a study of recent community efforts to coordinate general hospital facilities with such resources and services as chronic care institutions, homes for the aged, nursing homes, home care programs, and family service agencies

The American College of Physicians is receiving $43,100 to establish minimum standards of quality and efficiency for evaluating the practice of internal medicine in hospitals, 100 representative hospitals will be used in the pilot study Other institutions and amount of grants made are University of North Carolina School of Medicine, $27,370, University of Tennessee College of Medicine, $50,000, University of Michigan, $19,550 and $28,307, St Louis University, $31,255, Minnesota Department of Health, $52,726, and Columbia University School of Public Health, $50,000

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EFFICACY OF TRIVALENT ADENOVIRUS (APC) VACCINE IN NAVAL RECRUITS

PROGRESS REPORT

Joseph A Bell, M D., Bethesda, Md., Capt Matthew J Hantover (MC), U S Navy
Robert J Heuner, M D , Bethesda, Md , and Clayton G Loosli, M D , Chicago

• The incidence of acute respiratory illnesses and the development of neutralizing antibodies are being studied in a comparison between a test group of 4,000 and contratest group of 12,000 naval recruits Each member of the test group received a single 2 ml intramuscular injection of a commercially prepared formaldehyde inactivated APC (adenoidal pharyngeal conjunctival virus) vaccine, types 3, 4, and 7 The dosage was fixed by preliminary studies in which the vaccine was compared with a placebo, the cause of pain after injection was discovered and obviated, methods of study were tested, and the proportion of recruits to be vaccinated was decided Laboratory data showed that the vaccine induced a substantial neutralizing antibody response to types 3, 4, and 7 adenovirus The clinical data of the progress report, which covers only one-third of the experience, showed that the vaccine effected a substantial reduction, estimated at 50 to 75%, of the total expected febrile respiratory illnesses, which in this study were associated mainly with type 4 adenovirus

The inoculation of susceptible volunteers with laboratory-inactivated type 3 adenovirus (APC) vaccines has been shown to induce a neutralizing antibody response without untoward local or general reactions and to confer substantial protection against infection and illness induced (challenge) by type 3 virus [1] (On May 25, 1956, investigators responsible for using the names adenoid degenerative (AD) viruses, adenoidal pharyngeal conjunctival (APC) viruses, respiratory illness (RI) viruses, and acute respiratory disease (ARD) viruses to designate a new group of respiratory viruses agreed to use henceforth the term "adenovirus" in lieu of former names) Type 3 adenovirus causes acute febrile illness in civilians,[2] and types 3, 4, and 7 apparently cause acute febrile respiratory disease (ARD, febrile catarrh) in military recruits [3] Since outbreaks of illness associated with all three virus types occurred in recruits at the United States Naval Training Center, Great Lakes, Ill ,[4] a cooperative study was undertaken to determine if type 3, 4, and 7 adenovirus vaccine would prevent naturally occurring acute respiratory disease in naval recruits

In brief, the vaccine was a commercially prepared formaldehyde-inactivated, trivalent adenovirus vaccine, types 3, 4, and 7 It was given to a small group of men in a preliminary study on dosage and reaction on Dec 19, 1955 The vaccine was then given to some 4,000 newly arrived recruits during the period from Jan 11 to April 19, 1956, and the vaccinated recruits have been observed together with some 12,000 control recruits for the occurrence of acute respiratory illness Although the laboratory, clinical, and epidemiological analyses are incomplete, the findings to date appear worthy of report The vaccine induced a neutralizing antibody response to each of the three virus types without untoward local or general reactions and conferred substantial protection against acute febrile respiratory illness

The vaccine was prepared commercially to make easier possible future reproduction for general use Strains of types 3, 4, and 7 adenovirus, originally isolated and grown in monkey kidney cell cultures, were used [5] Methods of mass virus culture and inactivation studies will be described elsewhere [6] To assure identity and freedom from contamination with monkey renal or other "wild viruses,' a rabbit serum containing homologous neutralizing antibodies was added to samples of each monovalent live virus pool and the mixture inoculated into monkey kidney and HeLa cell cultures No cytopathogenic effect occurred Inactivation was accomplished by adding a solution of formaldehyde to a final concentration of 0 25% and holding the suspension for 24 hours at 37 C in a shaking machine and then for one week or longer at 4 to 7 C A sample of each monovalent inactivated virus pool was dialyzed and inoculated into monkey kidney and HeLa cell cultures, and no virus was detected The formaldehyde solution was then partially neutralized with sodium bisulfite solution, reducing the formalin content to a final calculated concentration of 0 1% The three pools were then mixed in equal proportions and packaged in 10-dose vials and maintained in a frozen state until used Qualitative and quantitative tests for safety and sterility were carried out as prescribed for poliomyelitis vaccine,[7] with the single exception that monkey inoculations were not done Potency was assayed by inoculation of rabbits with each monovalent vaccine pool and the final trivalent product Each pool and the final product induced a substantial neutralizing antibody response to each of the three virus types[6] A second lot of vaccine was also commercially prepared in like manner for these studies, and the results of rabbit tests to assay potency were similar

TABLE 1 —*Comparability of Neutralizing Antibody Tests of Aliquots of Same Serums in Different Laboratories Using Different Tissue Cell Cultures*

	Neutralizing Antibody Titers of Serums Tested at NAMRU-4 and							
	University of Chicago in HeLa Cell Cultures				NIH in Monkey Kidney Cell Cultures			
	<1 8	1 8	>1 8	Total	<1 8	1 8	>1 8	Total
Neutralizing Antibody Titers of Serums Tested at NAMRU-4 in HeLa Cell Cultures <1 8	45	7	1	53	43	3	13	59
1 8	5	5	6	16	3	3	15	21
>1 8	29	37	84	150	5	1	155	161
Total	79	19	91	219	51	7	183	241
% ≧ "fourfold difference*	30/219=14%				18/241=7%			

* Titer of <1 8 in one laboratory and >1 8 at the other

Dosage and Procedure

The first part of this report concerns a preliminary study designed to determine what dose of vaccine would induce neutralizing antibodies to each of the three types of virus and to suggest the procedures to be used in subsequent mass protection studies For the latter, it was desired (1) to know the status as regards neutralizing antibodies of arriving recruits so as to estimate the proportion that could be safely vaccinated without inducing "herd immunity" to an extent that might prevent the occurrence of disease in controls, (2) to assure that the commercially prepared product would not produce untoward local or general reactions, and (3) to test clinical, epidemiological, and laboratory methods to be used To these ends, a total of 240 recruits in three training companies, who arrived at the training center between Dec 1 and 11, were randomly distributed into six groups of about 40 men each The distribution was made in such a manner that each company would have, as closely as possible, the same number of recruits in each group Blood specimens were collected from all recruits on zero day, the day of vaccination, and on the 14th, 28th, and 37th days Groups 1 and 3 received single doses of 1 and 2 ml of vaccine, respectively, and 1 ml of saline solution with formaldehyde at 14 days, groups 2 and 4 received two doses at 14-day intervals of 1 and 2 ml of vaccine respectively, and groups 5 and 6 received two doses of 1 ml of saline solution with formaldehyde The vaccine and placebo were injected intramuscularly into the deltoid muscle, and no untoward reactions occurred except immediate pain, which lasted from two to five minutes The pain was found to be due to too much residual formaldehyde and was entirely obviated in some 2,000 recruits subsequently vaccinated with the same vaccine lot after the formaldehyde concentration had been reduced to 0 025 0 05% with sodium bisulfite solution In the second lot of vaccine, sodium bisulfite was added in an amount calculated to leave a residual concentration of 0 05% formalin, and this lot caused no pain on injection and no other untoward reaction

All zero-day, 14-day, and 28-day serums available from each of the companies were tested at Naval Medical Research Unit No 4 (NAMRU-4) in a single test with HeLa cell cultures for neutralizing antibodies to virus types 3, 4, and 7 The procedures were essentially the same as previously described, procedure 2[8] with modification Tests were read 24 to 48 hours after virus controls first showed cytopathogenic changes 3 or 4+ A serum dilution was considered positive if ≦1+ cytopathogenic change occurred Zero-day serums were tested at 1 4 dilution, and 14-day and 28-day serums were tested at 1 8 and 1 16 dilutions In addition, with the results at NAMRU-4 unknown to the investigators, an aliquot sample of some of these serums was tested for neutralizing antibodies at the University of Chicago in HeLa cell cultures and another such sample of different serums was tested in monkey kidney cell cultures at the National Institutes of Health to observe the comparability of testing

Serologic Results

The serologic results of the preliminary dosage study are shown in tables 1 and 2 Table 1 shows the comparability of the test results when aliquots of the same serum were tested at comparable dilutions to the same antigen in the different laboratories using different cell cultures The test results compared better than anticipated, particularly in view of the fact that the end-point of the test is not absolute neutralization but depends on delay rather than prevention of cytopathogenic effect and in view of the likely differences in individual readings at the different laboratories The monkey kidney cell test appeared more sensitive in detecting serum antibodies than the HeLa cell test In all, the results of testing aliquot samples at two other laboratories confirmed the adequacy of the more extensive testing at NAMRU-4

Table 2 shows the number and percentage of recruits developing neutralizing antibodies in the NAMRU-4 tests It shows the results of testing paired zero-day and 14-day serums of the various vaccine groups 1 to 4 and the placebo groups 5 and 6 and also shows the totals for the vaccine and placebo groups in

TABLE 2 —*Recruits with Neutralizing Antibody Response in Zero-Day and Fourteen-Day and Zero-Day and Twenty-Eight-Day Serums by Vaccine and Placebo Groups*

		Inoculums			No Developing Neutralizing Antibodies (Titer ≧1 8)/ No with Zero Day Neutralizing Antibodies (Titer ≦1 4)					
					Type 3		Type 4		Type 7	
Paired Serums	Study Group	Amount Vaccinated Ml	Doses No	Recruits, No	No	%	No	%	No	%
Zero and 14 days	1	1	1	41	8/16	50	15/28	54	11/18	61
	2	1	2	38	9/12	75	14/23	61	13/23	56
	3	2	1	37	8/13	62	12/22	55	12/18	67
	4	2	2	38	12/21	57	12/21	57	8/17	47
	1-4	Vaccine total		154	37/62	60	53/94	56	44/76	58
	5 and 6	Placebo total		71	8/31	26	13/50	26	5/39	13
Zero and 28 days	1-4	Vaccine total		154	42/62	68	75/94	80	48/76	63
	5 and 6	Placebo total		71	11/31	35	40/50	80	8/39	21

the zero day and 28-day serums Table 2 shows only changes in neutralizing antibody status from a zero-day titer ≦1 4 (only two recruits had titers of 1 4) to a titer 1 8 or over, it does not show titer rises in recruits who had antibody titers >1 4 on zero-day Previous studies showed that this change in antibody level represents a change from greater than 90% susceptibility to a moderate degree of immunity against a challenge-induced illness[9] In the zero-day serums, the percentage of recruits in these three companies considered highly susceptible to illness caused by types 3, 4, or 7 may be computed from the totals in table 2 Such computations suggest that, of the 225 adequately tested, 93, 144, and 115 were susceptible to infection by types 3, 4, and 7 virus, respectively, i e , 41%, 64%, and 51% From these data, it would appear that, if a large proportion of arriving recruits were immunized, herd immunity might prevent outbreaks, hence, it was decided to vaccinate only 20% of arriving recruits

Table 2 shows that, in the zero-day to 14-day serums, the percentage of recruits with antibody changes in the various vaccine dosage groups 1 to 4 was not significantly or consistently different As compared with the placebo groups, however, the vaccine groups showed a significantly higher percentage of recruits with rises in neutralizing antibody titers to each of the three virus types In the zero-day to 28-day serums, the totals show similar differences for types 3 and 7 antigen but not for type 4 It is noteworthy that type 4 adenovirus isolations were made from throat cultures collected from 11 recruits with acute febrile illness during the zero-day to 21-day period, no other virus type was isolated Since types 3 and 7 were not isolated from such specimens, the rises in neutralizing antibodies to types 3 and 7 in the placebo groups were either heterotypic rises or due to undetected infection with these types The prevalent natural infection with type 4 and the possible heterotypic responses preclude an accurate estimate of the amount of neutralizing antibody response caused by the vaccine per se, but it is clearly evident that the trivalent vaccine induced a significant neutralizing antibody response to each of the three virus types in a substantial number of recruits Even though the data suggested no appreciable differences in the neutralizing antibody response to the various doses of vaccine given, a single 2-ml dose was selected as most practical and desirable for the subsequent mass protection study

The first commercial lot of vaccine was compared with the second similarly prepared lot on March 5, 1956, by inoculating a single 2-ml dose of one or the other lot or a 2-ml dose of placebo into men randomly assigned into three approximately equal groups from a company of 63 recruits The paired zero-day and 14-day serums were tested for neutralizing antibodies at the University of Chicago Of the 22 recruits in the placebo group, only one had a rise in titer for type 3 and none to type 4 or 7 This indicates slight or no concurrent natural infection with adenovirus types 3, 4, and 7 during the zero-day to 14-day period in this company Of the 21 recruits who received the first vaccine lot, 9, 13, and 14 showed rises in neutralizing antibody titer to virus types 3, 4, and 7 respectively Of the 20 who received the second vaccine lot, 10, 7, and 15 also showed rises to types 3, 4, and 7 Thus, serologic evidence in recruits indicates that the two separate commercially prepared lots both gave substantial and perhaps equivalent neutralizing antibody response

Clinical Results

The second part of this report covers the crude experience with respiratory illness in vaccinated and nonvaccinated recruits of the first 91 companies participating in the mass protection study It includes 5,260 men who entered observation between Jan 11 and Feb 13, 1956 This experience constitutes approximately the first third of the mass protection study, which will be reported in more detail when observations are completed In general, recruits arrive almost daily at the training center in varying numbers They are formed into companies of approximately 60 men each and routinely vaccinated against smallpox, typhoid, and tetanus First doses are given on the third to fifth day after arrival, and recruits remain in training at the center for about nine weeks In addition, recruits arriving Jan 18 to April 23, who had histories of no penicillin sensitivity, received a single injection of 600,000 units of benzathine penicillin G (Bicillin) for prophylaxis against infection with Streptococcus organisms

In 87 of the 91 companies, adenovirus vaccine was given intramuscularly in a single 2-ml dose to a randomly selected 20% sample of recruits at the time of routine vaccinations During the period from Jan 11 to March 5, a study on influenza vaccine was also under way at the training center Approximately one-half of all arriving recruits, selected at random, received aqueous polyvalent influenza vaccine, and the remainder received a saline solution with formaldehyde as a placebo control In both studies recruits were randomly selected on the basis of their serial numbers By such selections adenovirus vaccine was given to a near equal 20% of those receiving influenza vaccine and those receiving the placebo Since many different inoculations were given to arriving recruits and since neither the observers nor the recruits knew who had received adenovirus vaccine, influenza vaccine, or control products, all recruits in the companies studied who did not receive adenovirus vaccine are adequate controls for the vaccinated group

It was planned to give the study vaccine to only 20% of arriving recruits, however, by the time the study was under way, type 4 adenovirus was being isolated in some 40% of cases of acute respiratory illnesses reported at sick call Since the vaccination of arriving recruits resulted in a relatively slow accumulation of vaccinees, all members of every 10th company formed from Feb 7 to March 23 were vaccinated It was felt that this would not greatly increase herd immunity of the entire recruit population, and it was hoped that eventual vaccination of 12 such companies in this manner might give evidence as to the effectiveness of the product in preventing infection in a whole company The members of only 4 of the 91 companies included in this report were so vaccinated

The observations for occurrence of acute respiratory illnesses were carried out by means of surveillance by NAMRU-4 of recruits reporting to sick call. Throat swabs for adenovirus and beta-hemolytic streptococci were collected from all recruits reporting to sick call with acute febrile respiratory illnesses (maximum temperature equal to or greater than 100 F [37.8 C]). In addition, special studies to be reported later were carried out wherein a random sample of recruits were visited in their barracks and had their temperatures taken, throat and blood specimens collected, and histories of new acute respiratory illness recorded. (A "new" respiratory illness was one in which the complaints, symptoms, or physical findings were chiefly directed to the respiratory tract and not obviously due to other known diseases, such as measles or mumps, and one that was new in the sense that the recruit had not reported to sick call for at least seven days.)

The adequacy of sampling procedures and the uniformity of observations were confirmed by the fact that rubella occurred in nearly equal percentages of vaccinated and nonvaccinated recruits in the 91 companies studied. Fifty-eight of 1,247 recruits (4.65%) reported to sick call with rubella in the vaccinated group, and 189 of 4,013 (4.71%) so reported in the nonvaccinated group. In all weeks proportions in each group were nearly equal.

TABLE 3.—*New Acute Respiratory Illnesses Reported at Sick Call by Vaccinated and Nonvaccinated Recruits in Ninety-One Companies Entering Study from Jan. 11 to Feb. 13, 1956*

		Illnesses During 1st 2 Wk						Illnesses During 3rd to 9th Wk					
		Nonhospital Admissions				Hospital Admissions		Nonhospital Admissions				Hospital Admissions	
		<100 F		≧100 F				<100 F		≧100 F			
Adenovirus Vaccine Group	Recruits No.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Vaccinated	1,247	29	2.3	12	1	2	0.2	288	23.1	57	4.6	25	2
Nonvaccinated	4,013	71	1.8	60	1.5	20	0.5	818	20.4	389	9.7	227	5.7

During the weeks ending Jan. 14 to April 14, the admission rates for respiratory illnesses per thousand per week were unusually low. They ranged from 3.2 on Feb. 4, to 9 on March 24. Very few such illnesses were associated with streptococcic infection. These low rates at this season were in a large part attributed to the prophylaxis with benthazine penicillin G then in effect. Whether this would affect occurrence or reporting of respiratory illness due to virus is unknown. It is of interest that during early 1954, when no such prophylaxis was used, some 50% of acute febrile respiratory illnesses were associated with streptococcic infection and only some 25% of the remainder were attributable to adenovirus.[3a]

Table 3 shows the number and percentage of new respiratory illnesses reported at sick call by recruits in the first 91 companies entering the study between Jan. 11 and Feb. 13, 1956. These recruits have been observed throughout their nine-week training period. Since the vaccine could not be expected to be effective immediately after inoculation, the reported respiratory illnesses were arbitrarily separated into those occurring during the first two weeks after inoculation and those occurring during the remainder of the training period, i. e., in the third to ninth weeks. It is clearly evident from table 3 that, in weeks one and two and in weeks three to nine, there was no significant difference in the occurrence of minor afebrile respiratory illness in the vaccinated and nonvaccinated groups. On the other hand, in the third to ninth weeks and perhaps to a lesser extent in the first and second weeks, the vaccinated group had significantly fewer febrile illnesses and fewer hospital admissions than the nonvaccinated group. Although not shown in the table, this difference was uniformly present during each week of observation and was not materially altered when the members of the four entirely vaccinated companies were excluded. No outbreaks of influenza occurred, and there was no appreciable difference in either the total or the weekly percentage of reported illnesses among members of groups receiving and not receiving influenza vaccine.

The throat-swab specimens collected from recruits with acute febrile respiratory illness for virus isolation are stored at −65 C and are being tested in a random manner so as to minimize differences between tests. Since only about one-fifth of recruits in the companies studied were vaccinated, and since they experienced fewer illnesses than the nonvaccinated recruits, only 7 of the 88 specimens tested to date were from vaccinated recruits. Type 4 was isolated from 2 in the vaccinated group and from 21 in the nonvaccinated group; no other adenovirus type was recovered. This indicates that a substantial proportion of the febrile respiratory illnesses were due to type 4 virus and that illnesses attributable to types 3 and 7 were not prevalent during this period of observation. The comparatively low incidence of illness observed in the vaccine group shows the protection against illness caused by type 4 adenovirus. Since protection against a challenge-induced illness caused by type 3 virus has been demonstrated,[1] further studies are necessary to assess protection against illness caused by type 7.

Comment

A final assessment of the amount of protection conferred by the commercially prepared trivalent adenovirus vaccine must await completion of laboratory, clinical, and epidemiological analyses of the entire study group, which will be included in a later report. To date (table 3) it would appear that 50 to 70% of the total expected febrile respiratory illnesses were prevented by the vaccine, but this obviously will vary from time to time and from place to place depending primarily upon what proportion of total reported illnesses is caused by adenovirus of the types included in the vaccine. The vaccine used in this study was the first that has been prepared on a commercial scale, and perhaps more potent products will be developed.

It has been shown that type 3 adenovirus vaccine prevented infection as well as illness.[1] If this is true for types 4 and 7, it would appear likely that the vaccination of a substantial number of arriving recruits might produce herd immunity sufficient to completely prevent outbreaks among recruits of respiratory illness due to adenoviruses

Summary

A formaldehyde-inactivated adenovirus (APC) vaccine containing types 3, 4, and 7 has been commercially prepared and administered intramuscularly in a single 2-ml dose to nearly 4,000 naval recruits without untoward local or general reactions The vaccine induced a substantial neutralizing antibody response to each of the three types of virus contained in the vaccine All evidence indicates that the vaccine induced a substantial reduction in the rate of occurrence of acute febrile respiratory illness associated with type 4 adenovirus It would appear that the usual interference with military training routine resulting from acute febrile respiratory illnesses may be reduced by adenovirus vaccines

National Institute of Allergy and Infectious Diseases (Dr Bell)

This is a cooperative study conducted by Naval Medical Research Unit No 4 (NAMRU-4) at U S Naval Training Center (USNTC) Great Lakes Ill the Laboratory of Infectious Diseases National Institutes of Health (NIH) Public Health Service U S Department of Health, Education, and Welfare Bethesda Md., and the Department of Preventive Medicine of the University of Chicago (U of C) at Chicago Participating in this study were these persons Directors—J A Bell M D (NIH) M J Hantover CAPT MC USN (NAMRU-4) R J Huebner M D (NIH) Biometrician—W T Stille M S (NAMRU-4) Clinician and Epidemiologist—J E Whiteside CDR MC USN (NAMRU-4) and assistant W E Pierce HMC USN (NAMRU-4) Virology and Immunology—M Friedman, Ph D (NAMRU-4) J T Grayston M D (U of C) J W Hartley M S (NIH) W Pelon Ph D (NAMRU-4) W P Rowe M.D (NIH) R L. Woolridge M S (NAMRU-4) Consultants included C. G Looslie M D (U of C) and T G Ward, M.D Lobund Laboratories Notre Dame University (formerly at Johns Hopkins University)

The opinions expressed herein are those of the authors and cannot be construed as reflecting the views of the Public Health Service at large of the Department of Health, Education and Welfare or of the Naval Service at large of the Department of Defense

All seed virus used in this study was prepared at the National Institutes of Health Live virus pools used were prepared by Parke Davis & Company Detroit, and Microbiological Associates Inc., Bethesda, Md. Identity tests were done at the National Institutes of Health and inactivation at Parke Davis & Company Tests for inactivation, potency and safety were carried out in duplicate at Parke Davis & Company and the National Institutes of Health

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OBSERVATIONS ON ONE HUNDRED CASES OF HEATSTROKE

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The summers of 1952, 1953, and 1954 were three of the six hottest summers in the past century and a quarter in St. Louis Over 1,000 heat victims were observed in the receiving room of St Louis City Hospital Conditions of many were of a mild nature and did not require hospitalization, however, 178 patients had serious manifestations of the heat syndrome and were hospitalized for observation and treatment. This report is a review of 100 selected cases of heatstroke Patients under the age of 12 years and those with heat exhaustion or prostration were excluded from this series

The clinical pictures ascribed to high environmental temperatures have been well described by others There are three fairly distinct syndromes that may arise from exposure to high environmental temperatures, although overlapping may occur The first syndrome is heat cramps or salt depletion, manifested by muscle cramps, profuse sweating, polydipsia, and a normal temperature This has been attributed to the marked loss of electrolytes as a result of profuse sweating Heat exhaustion is characterized by profuse per-

• *One hundred cases of heatstroke were selected for analysis from more than 1,000 hospital admissions during three exceptionally hot summers in a large city These patients had the hot, dry skin that distinguishes heatstroke from other syndromes caused by high environmental temperatures They also had symptoms referable to the central nervous system and temperatures usually exceeding 41 1 C (106 F) The greatest risk of life was in those patients with the severest central nervous system abnormalities there were 12 deaths among the 53 patients who were comatos when admitted Temperatures over 41 1 C, uremia, hypotension, and hyperpotassemia were also poor prognostic signs all of the four patients with hyperpotassemia died Treatment began with prompt total immersion and vigorous massage in an ice bath this was followed by attention to cardiovascular status, electrolyte fluid balance, oxygen requirements, and concurrent disease Some of the data from laboratory studies on blood and cerebrospinal fluid supplied valuable therapeutic guidance, and a comparison with past mortality figures indicated that both prophylaxis and treatment have become more effective*

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spiration, pallor of the skin, low blood pressure, and a variable body temperature that is rarely elevated The diagnosis of heatstroke depends upon (1) an adequate exposure to high environmental temperatures, (2) hyperpyrexia, over 106 F (41 1 C), (3) hot, dry skin, and (4) central nervous system signs We have adhered to this definition except for the degree of hyperpyrexia The variability of an absolute body temperature elevation over 106 F seems to us an artificial and arbitrary criterion Ladell has commented on a group of patients whose body temperatures were between 103 F (39 4 C) and 106 F who had the clinical picture of heatstroke, classifying their condition as "border line hyperpyrexia" It would seem that a transition could exist between border line hyperpyrexia and heatstroke, whereby the body temperature might not exceed the arbitrary value of 106 F In the heat victim, fever is a manifestation of the body's inability to dissipate heat All agree that the absence of sweating is the primary defect, the mechanism of which is not well understood The duration of time between defective sweating and the appearance of an elevated body temperature might lag behind other clinical manifestations of heatstroke In terms of potential morbidity and mortality, particularly in an aged group, patients with body temperatures below 106 F and the other signs of heatstroke still represent an acute medical emergency We have, therefore, included as heatstroke victims acutely ill patients with hot, dry skin and central nervous system signs, even though some of them have not exhibited an absolute body temperature in excess of 106 F Of the 100 cases, there were 39 that fell into this group The other signs of the heatstroke syndrome were present, and four of these patients eventually died In none of these patients were there the clinical findings associated with heat exhaustion

Present Study

An analysis of all admissions for heatstroke to the medical wards of the St Louis City Hospital in a three-year period, 1952-1954, was made These patients had been seen in the receiving room first, where eligibility for admission was determined on the basis of the clinical picture On many occasions definitive treatment to lower the body temperature had already been instituted before transfer to a medical ward Complete histories were taken and physical examinations and routine blood and urine examinations were done as soon after arrival in the ward as possible In selected cases other studies were made determinations of levels of sodium, chloride, potassium, blood urea nitrogen, studies of carbon dioxide-combining power, spinal fluid examinations, and liver function studies

Of the 100 patients, 59 were males and 41 females This is in contrast to previous studies, in which the preponderance of males was noted All were white The ages of these patients varied from 26 to 88 years, with a predominate number over 60 years old Table 1 shows the distribution by age and the subsequent number of deaths There was a large incidence of associated diseases, particularly of the degenerative type, in the older patients Table 2 lists the associated diseases encountered It is noted that 84% of the patients had some involvement of the cardiovascular system as determined clinically The over-all incidence of alcoholism could not be determined, although 23 of the 74 patients (30%) able to give histories admitted a record of alcoholic intake prior to the onset of their heatstroke There were five deaths in this group

In 74 patients for whom a clinical history could be obtained, the prodromal symptoms included nausea vomiting, vertigo, headache, muscle cramps a feeling of hotness, and dyspnea, which were similar to those of previous reports Seventy-five per cent had noted decreased sweating prior to their admission to the hospital Observations of Ferris and others were similar Twelve per cent noted polyuria There were three patients who gave a history of previous heat injury Only seven patients stated that their symptoms began suddenly Twenty-eight had symptoms for less than 24 hours, there was only one death in the group The greatest number of patients had symptoms for two to five days The relatively long duration of the prodromal symptoms in the majority of patients probably represents transitional symptoms of fluid and electrolyte imbalance heralding the onset of the hyperpyrexia, the absence of sweating and central nervous system signs of heatstroke

TABLE 1 —*Incidence of Heatstroke by Age of Patient*

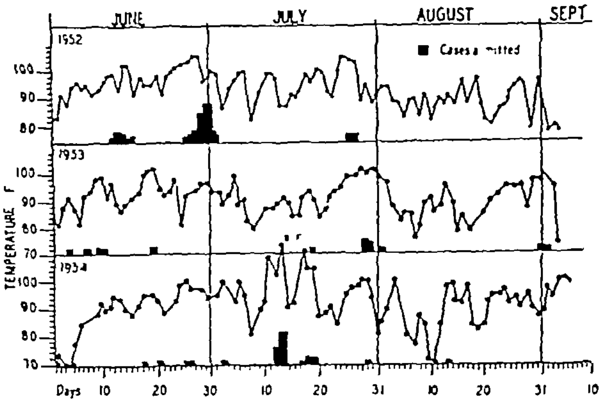
Age Group	No of Patients	No of Deaths
21 30	2	0
31 40	3	2
41 50	7	1
51 60	18	2
61 70	30	4
71 80	30	5
81 90	10	3
Total	100	17

Climatic Temperature —The year of 1952 was the first year of prolonged heat since the heat waves of 1934 to 1936, having 68 days with an average temperature of over 90 F In 1953 and 1954 there were 79 and 72 days with temperatures over 90 F respectively The figure represents the daily mean temperature for St Louis as obtained from the U S Weather Bureau and the number of admissions for heatstroke to the St Louis City Hospital during this three-year period The average relative humidity ranged from 50 to 60%, with wind movement generally from the south to southeast at about 8 to 10 miles per hour It is seen that the admission rate follows an early seasonal atmospheric temperature elevation or a prolonged continued one By far the greatest number of admissions for heatstroke was in the month of June, the next greatest was in July, 1954, when extremely high temperatures were

TABLE 2 —*Incidence of Other Conditions in Total Heatstroke Patients and Deaths*

Condition	*Incidence in Total Patients*	*Deaths Within Group*
Arteriosclerosis general	10	1
Cardiovascular arteriosclerosis	64	9
Cerebroarteriosclerosis	9	1
Alcoholism	23	5
Diabetes	7	1
Renal disease	4	0
Chronic pulmonary disease	4	0
Liver disease	3	0
Blood dyscrasia	2	0
Malnutrition	2	0
Duodenal ulcer	1	0

recorded Sporadic cases occurred throughout as a result of sustained temperature elevations, usually of three or more days duration This relationship between duration of high atmospheric temperature and the incidence of heatstroke has been noted previously[2]



Relationship of environmental temperatures to admission rates for clinical heatstroke

Hyperpyrexia—The presence of fever was noted in all patients in this series Table 3 shows temperature recorded on admission and the subsequent mortality It appears that the mortality rate is slightly influenced by the degree of fever upon admission In the past there has been confusion over the degree of fever Some have maintained a rigid view, with an absolute body temperature of over 106 F as the main criterion for heatstroke Ladell[1] designated those patients with temperature below 106 F as having borderline hyperpyrexia, others have included patients with body temperatures below 106 F in their series[3] In the present series, 44 patients had on admission body temperatures below 106 F Five of these subsequently developed temperatures recorded over 106 F Thirty-nine patients were never observed with temperatures over 106 F, of these, four later died The mortality rate for those patients whose recorded temperatures never exceeded 106 F was 10% as contrasted to 21% for those with temperatures of 106 F or more upon admission or subsequently

TABLE 3—*Temperatures on Admission of Heatstroke Patients and Mortality*

Temperature F	Total	Deaths
101	1	1
102	8	2
103	6	1
104	18	1
105	14	2
	44	7 (10%)
106	15	1
107	14	4
108	13	2
109	4	1
110	9	2
111	1	0
	56	10 (17%)

Skin Changes—The absence of sweating was noted in that all of our patients had a hot, dry skin on admission There were no cases of purpura and no recorded heat rash Twenty-seven patients had evidences of a systolic blood pressure below 100 mm Hg, however, hot, dry skin and a bounding pulse differentiated this symptom from the usual picture of peripheral circulatory collapse Nine (33%) of these patients died, indicating the poor prognosis accompanying the presence of a systolic pressure below 100 mm Hg

Central Nervous System Signs—Ninety-eight of the 100 patients exhibited some central nervous system abnormalities, varying from lethargy to coma The greatest risk to life occurred in the comatose group

TABLE 4—*Relation of Temperature and Level of Consciousness*

Temperature F	Normal	Lethargy	Disorientation	Stupor	Coma	Death
101	0	0	0	0	1	1
102	1	0	1	1	4	2
103	1	2	2	1	0	0
104	0	0	4	6	4	2
105	0	2	3	7	0	2
106	0	0	1	4	10	1
107	0	0	3	4	7	4
108	0	0	0	3	11	2
109	0	0	0	0	7	1
110	0	0	0	1	9	2
111	0	0	0	0	1	0

Of the 100 patients, the level of consciousness upon admission was normal in 2, 4 were lethargic, 14 were disoriented (1 death), 27 were in a state of mania or stupor (4 deaths), and 53 were in coma (12 deaths, a mortality rate of 25%) It was observed that the higher the temperature (table 4), the more severe the central nervous system signs, although exceptions were noted Three patients who had temperatures of 107 F (41 3 C) on admission were only disoriented Nine patients whose body temperatures were less than 105 F (40 5 C) were observed in coma, again emphasizing the variability of the degree of hyperpyrexia

Laboratory Observations—A variety of clinical laboratory procedures was available for analysis Routine blood counts and urinalyses were available on almost all patients (table 5) As expected, these proved of little value in estimating prognosis Halden[4] has recently reviewed the hematological findings in heatstroke The question of the effects of dehydration in heatstroke cannot be answered from our data, inasmuch as determinations of blood volumes were not done The available data in terms of the routine laboratory tests indicating dehydration—determinations of hemoconcentration and increased total proteins—were not borne out in those patients for whom results of these tests were available Only five patients (9%) showed a total erythrocyte count above 5 500,000, four

TABLE 5—*Laboratory Data* in Patients with Heatstroke*

	Total Cases %
White blood cell count (63) above 11 000	[illegible]
Red blood cell count (58) below 4,500 000	[illegible]
above 5,500 000	5
Hemoglobin level (61) below 12 gm /100 cc.	9
above 15 gm /100 cc	7
Urinary specific gravity (74) below 1 020	72
Albuminuria (78) 1+	60
Significant pyuria (68)	20
Blood urea nitrogen (61) above 20 mg /100 cc	42
Liver Function Tests	
Total protein (15) above 7.5 gm	13
Albumin (15) above 3 0 gm	100
Globulin (15) above 2.5 gm	100
van den Berg (15) above 1 0 mg /100 cc total	83
Sulfobromophthalein (4) over 20% retention	100
Alkaline phosphatase (11) below 4 King Armstrong units	100
Prothrombin time (11) below 50%	100

* Figures in parentheses indicate total number of determinations on each test

of these had temperatures in excess of 106 F Six patients (13%) had hemoglobin levels above 15 gm per 100 cc, three of these had temperatures over 106 F, and two of them had temperatures between 102 F (38 8 C) and 104 F (40 C) Only two patients (13%) of those in whom values of total serum proteins were determined showed increased values over 7 5 gm One had a temperature of 106 4 F and the other 104 F

Blood urea nitrogen determinations were available on 61 patients (table 5) Twenty-nine patients exhibited an elevation of over 20 mg per 100 cc Nine deaths occurred in this group, indicating the seriousness of this chemical finding Miscellaneous liver function tests were done on some patients but on too few for comparison (table 5)

Electrolytes —Serum sodium, potassium, chloride, and carbon dioxide–combining power determinations were available on roughly one-half of the patients (table 6) In general, serum sodium concentrations were normal, potassium levels tended to be decreased, values for chlorides were normal or slightly elevated, and carbon dioxide–combining power was within the normal range It is of interest that salt depletion was not conspicuous in our series, and the degree of hyponatremia and hypochloremia observed was of a mild nature, never approaching the extremely low values reported by Talbot in heat cramps

TABLE 6 —*Electrolyte Determinations*

		Total No	Deaths of Patients No
Sodium			
43 determinations normal, 135-145 mEq /l range 124 171 mEq /l			
Normal		25	4
Below 135 mEq /l		7	2
Above 145 mEq /l		11	3
Chlorides			
47 determinations normal 96-105 mEq /l range 90 138 mEq /l			
Normal		22	4
Below 96 mEq /l		5	1
Above 105 mEq /l		20	3
Potassium			
44 determinations normal 4 0-5 0 mEq /l range 2 7-6 4 mEq /l			
Normal		13	1
Below 4 0 mEq /l		27	4
Below 4 0 mEq /l	12		
Below 3 5 mEq /l	15		
Above 5 0 mEq /l		4	4
Carbon Dioxide—Combining Power			
38 determinations normal 21 30 mEq /l range 11 34 mEq /l			
Normal		23	5
Below 21 mEq /l		14	3
Above 30 mEq /l		1	0

Levels of sodium and chlorides were elevated in about 20% of those patients tested It is interesting that the vast majority of these patients—10 patients out of 11 with serum sodium level elevations and 12 patients out of 20 with elevated levels of chlorides—fell in that group of patients whose temperatures did not exceed 106 F Most of these patients with increased levels of serum sodium and chlorides also had azotemia and lowered carbon dioxide–combining power, indicating dehydration or prerenal azotemia Hyperkalemia occurred in four patients, all of whom died

Special Laboratory Examinations —The cerebrospinal fluid was examined in 29 patients In all, it was described grossly as being crystal clear Of 16 patients in whom cerebrospinal fluid pressures were taken, 15 had pressures below 300 mm of spinal fluid One patient had a recorded spinal fluid pressure of 360 mm There were 25 determinations made for spinal fluid protein, in 9 (36%) the protein value was over 40 mg per 100 cc, ranging from 42 mg per 100 cc to 152 mg per 100 cc There were no instances of pleocytosis or presence of blood in the 29 specimens of spinal fluids examined Determinations of levels of sugar and chlorides were too few to be significant In five patients electroencephalograms were made, those of four were interpreted as normal, while one showed a diffuse arrhythmia that cleared on a later examination two months later In three patients psychometric studies were made, with findings compatible with organic damage, repeat examinations in one patient three months later showed normal findings

Hospital Course —Clinical improvement generally occurred with the reduction of body temperatures The central nervous system symptoms persisted the longest The duration of fever was variable 8 patients had normal temperatures within the first 24 hours, 56 patients were afebrile by the fourth day, and 13 patients showed a labile temperature course for 7 to 14 days There were 17 deaths Seven deaths occurred in the first 24 hours, and an additional seven patients died in the first six days One patient died within one hour of admission, three each within 12 and 24 hours, one on the 2nd day, three on the 3rd day, one each on the 4th, 5th and 6th days, two on the 9th day, and one on the 13th day The longest duration from admission to time of death was 13 days The cause of death was acute left ventricular failure in eight patients and uremia with "anoxic nephrosis" in two The remaining seven deaths were attributable directly to the effects of the heat syndrome

Treatment —The management of these patients consisted in the rapid application of procedures to reduce the body temperature, provision of adequate tissue oxygenation by the treatment of shock, balance of electrolytes and fluids, prevention of bacterial complications, and consideration for the underlying disease process, inasmuch as most of our patients were of the older age groups Defervescence was accomplished by total immersion in an ice bath with vigorous massage until rectal temperatures were 102 F At this point the patient was transferred to a dry bed and closely observed Nasal administration of oxygen was started immediately, and, in those patients with systolic blood pressures below 100 mm Hg, arterenol (Levophed) was administered Fluid therapy was given cautiously, with the total volume never exceeding 3,000 cc per day For the most part, 5% dextrose in distilled water or isotonic sodium chloride solution was used Electrolyte values were determined and corrections made when indicated In a few patients with shock, cortisone was administered All comatose patients received penicillin prophylactically

Comment

The ill-effects of a prolonged high environmental temperature in man are due to the interference in the normal regulatory mechanisms that dissipate body heat

At an environmental temperature of 86 F (30 C) the amount of body heat that can be lost by convection, conduction, and radiation is drastically reduced With higher environmental temperatures (over 95 F [35 C]) the only method of heat loss is by evaporation with conversion of sweat to water vapor Evaporation is influenced by the environmental humidity and movement of air The higher the relative humidity and the lower the air movement, the less efficient is the sweating mechanism When the sweating mechanism for heat loss fails, the syndrome of heatstroke results, characterized by fever, the presence of a hot, dry skin, and various central nervous system symptoms and signs The seriousness of heatstroke is attested to by the high mortality The published figures vary from 38% to 70%[5] The mortality rate in our series was 17% We believe the improved mortality rate to be due to the rapid methods of cooling used, the use of pressor substances to maintain blood pressure, the prophylactic use of antibiotics, and the availability of clinical means of determining levels of serum electrolytes Some of the latter methods of treatment were not available to previous workers The use of adrenocortical hormones in heatstroke has been previously suggested[6] but is still to be evaluated in this syndrome Our brief experience with nine patients given cortisone or hydrocortisone in the usual dosage is not sufficient to comment on These drugs were used in the "poor-risk" patient, and it would be unfair to evaluate their effects only on this group Theoretically, the capillary damage and adrenal necrosis seen in heatstroke would suggest benefit with the use of these agents

Because of the seriousness of the problem of treatment of these individuals, it would seem rational to appeal for effective prophylaxis of the heat syndrome On the basis of our study, this would be practical if the following points were kept in mind by physicians likely to see patients under hot climatic conditions Heat victims can be anticipated if unusual late spring or early summer elevations of atmospheric temperature, over 95 F, occur or if extremely high temperatures, over 100 F, occur later in the summer or early fall The greatest risk of heatstroke is early in the year with the advent of high temperatures that persist for 48 or more hours This undoubtedly is due to the abruptness of the onset of environmental heat without an opportunity for acclimation to develop

Patients with cardiovascular disease are particularly vulnerable, as shown by the high rate of heatstroke in this group Eighty-four per cent of the patients had, by history, physical findings, or laboratory diagnosis, an involvement of this body system Prompt measures to avoid further heat exposure in this group at the onset of the prodromes should materially reduce the risk of heatstroke The relatively long prodromes with the multitudinous symptoms—nausea, vomiting, vertigo, headache, muscle cramps, feeling of hotness, and dyspnea—should be a caution sign to the physician when there is unduly hot weather in the community That effective measures for cooling are available is seen by the reduced number of heat victims admitted at the St. Louis City Hospital for the years 1952-1954 in contrast to the larger number of admissions in the years 1934-1936 The use of air-conditioning units, fans, and other devices will effect a reduction in the number of casualties

The manifestations of heatstroke are reversible if prompt and effective measures for cooling the body are available, for the heatstroke victim is in some ways analogous to the diabetic who needs insulin The heat victim is in need of an external means to accelerate heat loss until the temperature regulatory center can regain control The factors providing reversibility depend upon the history of exposure and the length of time of the prodromal symptoms Those patients with the shorter duration of symptoms did better

Prognostically, the following clinical signs pointed to a poor-risk" patient the presence of temperature over 106 F, coma, azotemia, hypotension, and hyperkalemia While not as marked as in previous reports, the presence of temperature over 106 F carried a higher mortality, 21% as compared to 10% Of the various central nervous system signs, the presence of coma was accompanied by a mortality of 22% Azotemia occurred in 29 patients, with nine deaths, a mortality of 31% Hypotension, a systolic blood pressure below 100 mm Hg, was attended with a 33% mortality Hyperkalemia occurred in only four patients, two of them also azotemic, but all died There were 7 deaths (41%) within the first 24 hours and a total of 14 deaths (82%) in the first six days It would follow that the greatest threat to life is in the first 24 hours but that the next seven days present a constant threat to the patient s life

Summary

In 100 cases of heatstroke observed during the years 1952-1954 at the St Louis City Hospital, poor prognostic signs were associated with a temperature over 106 F, coma, uremia, hypotension, and hyperpotassemia Admissions to hospital for heatstroke follow two different environmental situations an unusually high temperature early in the spring or late in the fall or a prolonged, continued heat wave Degenerative diseases play a major role as a precipitating factor in heatstroke Use of effective means of lowering body temperature and vasopressor drugs for the treatment of shock and the attention given to cases in the "borderline" group have reduced our mortality rate Prodromal symptoms are present for considerable periods of time, allowing for adequate prophylaxis of this medical catastrophe

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REMITTENT NECROTIZING ACROCYANOSIS

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• *Pain in hands and feet, with areas of coldness and cyanosis, was observed in 20 patients The group included both sexes, all ages from the fourth to the ninth decade of life, and both smokers and nonsmokers Attacks were not limited to any one time of the year*

Material for microscopic study was obtained incident to amputation of toes in two cases and by biopsy in nine additional cases Characteristic findings were perivascular inflammation, intimal proliferation in the arterioles of the skin, and occlusion of the capillaries of the skin by hyaline thrombi

Remissions occurred in all cases but only after an unpredictable intensity and duration of symptoms Amputation of a toe became necessary in each of two cases Lumbar sympathectomy was done, but with little effect, in one case

The phrase remittent necrotizing acrocyanosis describes this condition objectively Rest, sedation, and warmth are beneficial, cessation of smoking and use of vasodilator drugs are helpful Functional vascular spasm and organic occlusion are both factors in this disease

This is a study of a group of patients in whom acral ischemia appears to have been caused by some malady quite distinct from the usual vascular disorders The characteristic symptoms are symmetrical cyanosis, coldness, and pain in the hands or feet, often with necrosis of the tips of the fingers or toes, these appear suddenly in late adult life, in attacks of some months' duration without regard to season, with spontaneous remissions, and often with recurrence In delineating this malady, care has been exercised to exclude, as well as one can, other entities capable of causing similar effects These are, particularly, ordinary chronic acrocyanosis, Raynaud's disease, generalized scleroderma, arteriosclerosis, blood dyscrasias, thromboangiitis obliterans (Buerger's disease), and frostbite There is some evidence that occlusion of small vessels is present, but it is not certain that this is the basic pathology It therefore appears desirable, for the present, to characterize the disorder by the term remittent necrotizing acrocyanosis, implying its clinical character Brief mention has been made previously of the present group of cases [1]

This syndrome has received only sporadic attention in the literature Raynaud included several instances in his heterogeneous collection [2] Hutchinson, in 1891 [3] and 1896,[4] clearly indicated that symmetrical cyanosis and necrosis could occur apart from the paroxysmal reaction to cold and emotion that Raynaud had defined In 1934 Lewis and Pickering tabulated from the literature several varieties of symmetrical gangrene of the digits not related to Raynaud s disease proper and added two cases of their own [5] Their report is noteworthy for the emphasis on organic occlusion of small arteries as the responsible pathology

Material

Twenty patients were studied over a period varying from 2 to 17 years Three patients died from coronary heart disease two, three and one-half, and five years, respectively, after their initial attack. The majority of the patients were in their sixth, seventh, and eighth decades at the time of their first attack, five patients were in the fourth, fifth, and ninth decades There were 13 men and 7 women, yet the disease is probably evenly distributed between the sexes, since the men included a group of seven patients from the Massachusetts Soldiers' Hospital Thirteen patients were smokers, the remainder were not

Pathology

Biopsies were performed in nine patients, these were of the skin and subcutaneous tissue of fingers or toes in eight, of the forearm and leg in one In each of two patients a toe was amputated and was available for study A frequent finding was partial or complete obstruction, by intimal proliferation, of arterioles and small arteries in the dermis or subcutaneous tissue Perivascular inflammation, usually of a lymphocytic nature, was also noted Hyaline thrombi were commonly seen occluding dermal capillaries Smaller parietal hyaline masses were less frequently observed in some arterioles and small arteries

Clinical Picture

An attack occurred at any time of the year, about half of the attacks starting in the warm months In one patient each of his two attacks followed closely on an abdominal operation In another patient pneumococcic pneumonia preceded the attack In none of the other patients were there any noteworthy precipitating events There were no prodromal and no constitutional symptoms The fingers or toes, or both, were noted to become gradually cold, cyanotic, and painful, reaching a peak of severity in days or weeks The changes in the upper extremities were usually limited to the fingers, but in the lower extremities the cyanosis often spread to the entire sole and heel, as well as to some spots on the dorsum of the foot (fig 1) All extremities were involved in 11 patients, invariably more severely in one pair than in the other In nine patients the fingers alone were significantly involved The symptoms were unaffected by the ambient temperature, except when difficulty was present during the winter and when exposure to the outside air increased the severity Pain was a quite constant feature of finger involvement, it was inconstant in the feet and toes Pain was much increased when necrosis developed in the form of fissures or small ulcers at the fingertips or, rarely, as chronic *paronychia*

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Read before the Ninth Clinical Meeting of the American Medical Association Boston Nov 30 1955

The coldness and cyanosis were also the prominent findings on examination The cyanosis was often intense, but frequently changeable from one moment to the next These changes were incompletely removed by vasodilating agents or maneuvers The pulses at the wrists and ankles were normal by digital or oscillometric examination Exceptions comprised a 75-year-old man in whom pedal pulses were absent on one side, a 60-year-old woman in whom a dorsalis pedis pulse disappeared during observation, and a young man in whom the posterior tibial pulse disappeared for one month The skin showed no obliteration of its creases or other signs of sclerosis It did sometimes appear thin after attacks of long duration Pterygium of the nails, which I accept as a sign of severe cold sensitivity or of generalized scleroderma,[6] was only occasionally seen Sweating was only slightly increased

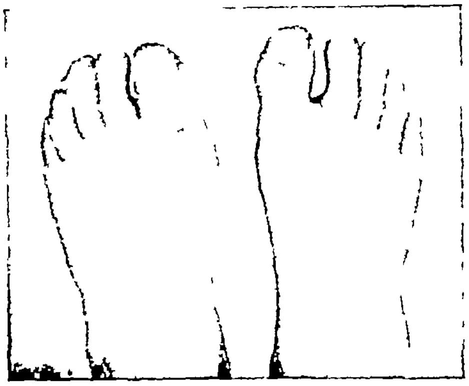

Fig 1 —Distribution of painful cyanosis in patient of case 1

Laboratory examination was unrewarding X-rays of the affected parts were normal Except for signs of microcytic anemia in one patient and an eosinophilia of 7 to 11% in another, the blood cell counts and smears were normal Tests for cold agglutinins and globulins were negative The albumin-globulin ratio was normal, but the globulin value rose in three patients during observation until it was almost equal to that of the albumin

Treatment has consisted mainly of attempts at vasodilatation by cessation of smoking, the wearing of warm clothes, and the use of vasodilator drugs, including tolazoline (Priscoline) hydrochloride, nicotinic acid, Roniacol (β-pyridylcarbinol) tartrate, and, latterly, Dibenzyline (N-phenoxyisopropyl-N-benzyl-β-chloroethylamine) hydrochloride, as well as sympathectomy These measures have been variously helpful but have never given complete relief Lumbar sympathectomy was used in two patients, but each case progressed to amputation of the great toe Lumbar plus dorsal sympathectomies in a third patient resulted in fairly rapid resolution of difficulty Dorsal sympathectomy in a fourth patient gave rise to healing of fingertip necroses, but only after some months With this record of equivocal results and the probability of ultimate remission, vasodilator drugs, especially Dibenzyline, have appeared to be usually preferable to sympathectomy One patient experienced an attack while receiving cortisone therapy for rheumatoid arthritis (fig 3), cortisone was used in one patient without relief, but it is being currently employed in another with some improvement

It is of interest to note the number of attacks and their duration Six patients have suffered a single attack, lasting one month to one year with recovery, and with no further attacks during observation up to eight years One patient had one attack lasting 4 years, in which there was necrosis of fingertips and, finally, after spontaneous healing, has had no further trouble for the past 12 years Finally, in three patients, symptoms have now been present in one continuous attack lasting two, three, and five years respectively Sequelae of the attacks have included the acquisition of ready vasospasm on exposure to cold and sensitivity of the fingers on touching rough surfaces or performing heavy manual work Age and sex differences appear not to have influenced either the pattern of the disease or its severity

Report of Cases

CASE 1 (Massachusetts Soldiers Hospital) —The toes of a 39-year-old man became blue and painful in July 1951 There was no history of phlebitis He smoked 20 to 30 cigarettes a day Examination in September showed blue, tender toes and cold feet All the major pulses were present The patient stopped smoking on request Three weeks later he was miserable because of tenderness of toes The left posterior tibial pulse disappeared but reappeared in October when he was obtaining some relief from Dibenzyline therapy In November both feet were again badly discolored (fig 1), with much tenderness on the lateral edge of the left foot and heel In February 1952 the process was still active Biopsy of the left fourth toe was done It showed moderate perivascular lymphocytic infiltration rare capillary agglutinative thrombi, and occlusion by intimal proliferation of an artery in the subcutaneous tissue (fig 2) As spring advanced he began to feel better He has had no further trouble for the following three and one-half years

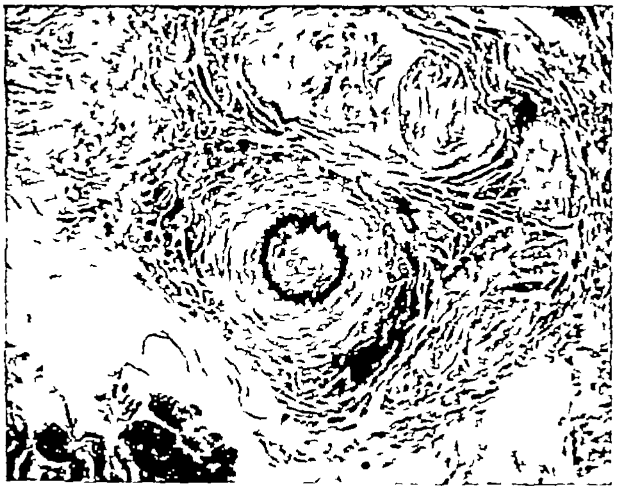

Fig 2 —Obliteration of the lumen of a subcutaneous artery by intimal proliferation in a biopsy specimen of the left fourth toe of the patient in case 1 Verhoeff's elastic tissue stain × 200

CASE 2 (New England Center Hospital) —A 57-year-old man on about the first of May 1948 and without any premonitory difficulty noted gradually increasing coldness of the fingertips of both hands followed in a few days by dark spots beneath the nails and on the tips of several fingers In a few days this progressed to ulceration and pain became prominent. The remainder of the history was not remarkable except for angina pectoris Examination one month after onset showed cyanosis and coldness of the fingers, with absorption of the fingertip pads and superficial ulceration (fig 4) All major pulses were excellent There were no cervical ribs, and tests for scalenus compression were negative General examination and laboratory tests were not remarkable Cessation of smoking and treatment with nicotinic acid were followed by immediate improvement, with complete relief at the end of the third month of the attack The patient has remained well for the ensuing seven years His doctor writes "Occasionally he has had very minor numbness and coldness of these fingers in cold weather The fingers are also still hypersensitive to rough surfaces"

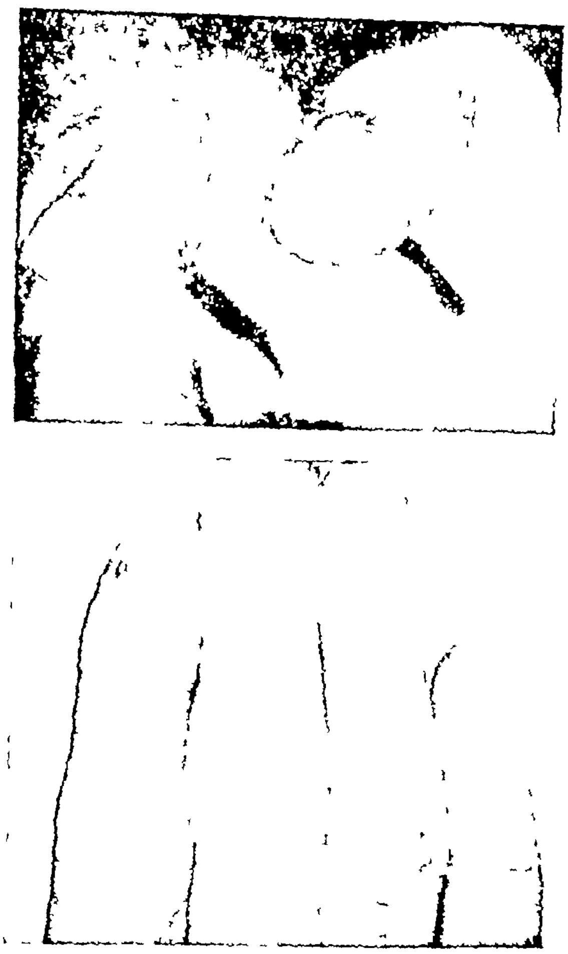

Fig 3 —Digital necrosis and cyanosis in a 62-year-old man with rheumatoid arthritis who received cortisone therapy Single attack of one month's duration (Reproduced with permission from Friend and Edwards A M A Arch Int Med 93 928 [June] 1954)

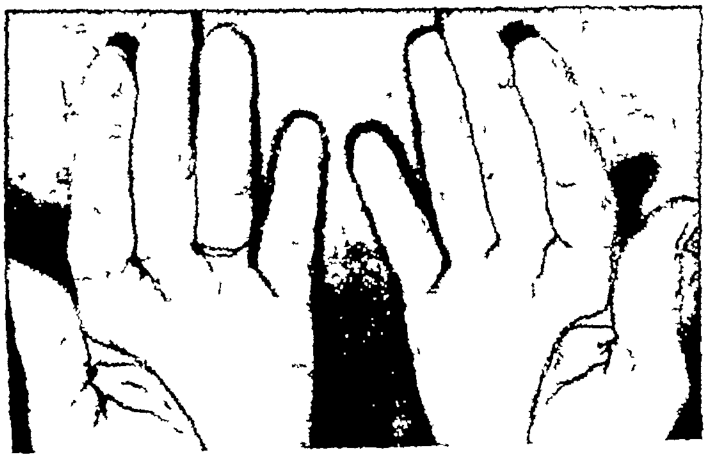

Fig 4 —Ulceration of fingertips in patient of case 2 The location of the ulceration at the tip of the left midfinger is typical The ulceration of the two index fingers is in an atypical location

CASE 3 (Massachusetts Soldiers' Hospital) —In August, 1951, during his convalescence from splenectomy for arteriosclerotic aneurysm of the splenic artery, a 63-year-old man developed coldness, cyanosis, and tingling of the toes He gave a history of a similar attack three years earlier, following a nephrectomy for calculus That attack had terminated spontaneously after three months Examination showed coldness and cyanosis of all the toes Excellent pulses were present Heparin sodium and Roniacol were given By October, the left foot appeared normal but necrosis of the tips of the first three toes of the right foot was present In November, the necroses healed after small eschars had been shed Cyanosis continued until February, 1952 Biopsy study of a toe then showed slight acute inflammation about dermal capillaries The patient has been well for the ensuing three and one-half years

CASE 4 (Massachusetts Soldiers' Hospital) —A 54-year-old man suffered a minor contusion of the right great toe in September, 1948 He stopped smoking by advice Because of continued pain in the toe, a right lumbar sympathectomy was performed elsewhere in April, 1949 Pain nevertheless continued and spread to the other toes When first seen, in November, 1949, a painful fissure had developed at the tip of the great toe The foot showed excellent sympathectomy effect, except that the first and second toes were cold and showed blue mottling The left foot was cold, sweaty, and cyanotic Both posterior tibial pulses were of good quality The remainder of the examination and the laboratory findings were normal The patient refused a transmetatarsal amputation but allowed removal of the right great toe The wound healed promptly Microscopic examination of the toe and of a later toe biopsy specimen showed occasional hyaline thrombi in the capillaries In February, 1950, he began to experience burning pain in the toes of the left foot By August, pain and cyanosis were extreme in the left foot, as well as in the right fourth toe, in a few spots of the dorsum of the right foot, and also in the left fifth finger Reluctantly, we acceded to the patient's request to perform a left lumbar sympathectomy, his symptoms continued In October, the albumin-globulin ratio had changed from 2 1 1 to a new value of 1 1 1 Symptoms appeared and waned through the fall and winter months, with fair remission in the spring of 1951 The process returned in both feet with moderate severity in the following fall and winter but abated in the spring of 1952 and has been inactive since

CASE 5 —A 45-year-old man was first seen in November 1939 for painful ulceration of the right middle finger He had had no difficulty with his extremities until the previous fall, when he began to experience numbness and coldness of the fingertips on exposure to cold In the spring, small areas of necrosis developed on fingers of the right hand and, during the summer, on the left thumb and index finger In September, the present ulceration developed on the right middle finger The patient complained of sensitivity of the fingers on exposure to cold and to pressure Examination showed a 1 5-cm area of superficial necrosis of the right middle finger, with puckered scars of tips of almost all the other digits Excellent radial and small ulnar pulses were present General examination was not remarkable Treatment consisted mainly of cessation of smoking and protection of the fingers from trauma and cold Remission occurred only after four years or a total of five years from the onset of symptoms No new attacks have occurred in the ensuing 12 years The patient continues to be sensitive to cold and accidental trauma

CASE 6 —A 61-year-old woman complained, in May, 1953 of painful hands and fingers Sudden pain and slight swelling of the hands, left forearm, and feet were first noted the preceding December No antecedent difficulty had been present except for a common cold Cyanosis of the hands began in April, 1953 The patient had been a moderate smoker but stopped smoking at the onset of the illness Although she was examined on a warm day, the hands and feet were cold and showed a mottled cyanosis that came and went All major pulses were normal, and examination was otherwise not remarkable No pathology was disclosed by the x-ray or by repeated laboratory examinations No true remission has occurred over the ensuing two and one-half years To the symptoms described has been added the occasional appearance of a drop of blood at a fingertip No obvious necrosis has been seen The right dorsalis pedis pulse disappeared in 1954 Dibenzyline therapy resulted in moderate improvement, although pain has often persisted in the presence of good vasodilatation She was most comfortable while taking prednisone (Meticorten) in the summer of 1955 It is planned to combine this drug with Dibenzyline therapy this fall, since symptoms are again severe

Comment

Delineation of Disorder—There is always the danger, in attempting to delineate a syndrome whose etiology is unknown, that diverse disorders having some symptom in common may be mistakenly grouped as an entity Several disorders may be separated from the presented syndrome with some confidence Ordinary acrocyanosis is a chronic unremitting disorder, in which as Lewis and Landis showed, arteriolar spasm is responsible[7] The other conditions mentioned are all seen with greater frequency than remittent necrotizing acrocyanosis and will usually be ruled out rather easily if they are thought of A previous publication summarized their major diagnostic characteristics[8] Occasionally, the diagnosis may depend on long-term observation, particularly in the cases of scleroderma and arteriosclerosis Frostbite poses an unresolved problem Patients who have suffered frostbite occasionally show a symptom complex much like that presented, but the rarity of its occurrence among large groups of frostbitten patients suggests the possibility that the frostbite may have been an incident in the course of some other vascular disease

There are some varieties of acrocyanosis with necrosis whose features differ somewhat from the presented disorder In some cases hypesthesia is prominent Several examples, probably representing various neurological disorders were collected by Barlow[9] and by Cassirer[10] under the heading of akroasphyxia chronica" An endarteritis of small vessels has occasionally been demonstrated, as in such a patient presently under our care but not included in the presented group

It is uncertain whether there is an identity between the presented syndrome and symmetrical cyanosis and gangrene occurring in acute infections such as seen by Lewis and Pickering Three of their cases complicated typhus I have had the opportunity of studying several cases of peripheral cyanosis and gangrene in typhus in Morocco and have seen the pathological material The clinical and histological pictures are distinctive and differ from those of this disorder[11]

Further variants of peripheral cyanosis and gangrene are found in individual case reports In one of Hutchinson's cases there were patches of gangrene on the knees and hips as well as the acral parts of the limbs[4] In a case report from the Massachusetts General Hospital[12] cyanosis of the hands and feet with gangrene of the finger tips was associated with hypertension At autopsy an endarteritis was found in the fingers and the changes of malignant vascular nephritis in the kidneys At our hospital, cyanosis of the toes developed rapidly in a patient dying from carcinoma of the liver Pathological findings in the feet were identical with those seen in the biopsy specimens of the reported group

Significance of Pathology—Even a conjecture of etiology cannot rest on the meager pathological studies reported Autopsy material is badly needed It would be of particular interest to know the condition of the arteries in the palms and soles, especially since Lewis and Pickering found endothelial proliferation and recurrent thrombosis in the arteries of the hands and fingers in two cases, probably fitting the category of remittent necrotizing acrocyanosis

In a former publication[8] it was emphasized that hyaline thrombi in small vessels, such as were found in the present material and as mentioned in the literature are the result of slowing of the blood stream from any cause and cannot be looked upon as a specific finding One deduction can safely be made from our data organic obstruction of small arteries and arterioles accompanies the vasospasm of the involved parts To Raynaud, symmetry of gangrene indicated causation by vasospasm The findings here presented lead to agreement with the thesis of Lewis and Pickering that "this cannot now be allowed, for symmetry is known in cases of gangrene clearly arising out of arterial disease There is increasing evidence in the group of cases as a whole, that when gangrene occurs, a structural change such as thrombosis has happened and permanently plugs the vessel"

Treatment—Specific treatment must await more knowledge of the pathogenesis It appears logical to advise rest of the parts, sedation, and medical measures to promote vasodilatation The latter include a warm atmosphere and warm clothing (except for cases at their peak of severity during hot weather), cessation of smoking, and the use of vasodilator drugs Dibenzyline has been the most useful medicament, but new drugs in this category are appearing from time to time and may be tried

The irregular and usually disappointing results of sympathectomy are probably due to the organic occlusion of the acral vessels—a situation resembling that seen in scleroderma Moreover, one hesitates to advise the operation when symptoms may soon remit. As in scleroderma, the severity and duration of symptoms may influence the decision to operate

Summary

Twenty patients showed symmetrical coldness, cyanosis, and pain of the hands or feet—often with necrosis of the tips of the fingers or toes—that appeared suddenly in late adult life, in attacks of some months duration without regard to season, with spontaneous remissions, and often with recurrence Amputation was necessary in two patients, each of whom lost a toe The term remittent necrotizing acrocyanosis is applied to the disorder The etiology is not known Biopsy has shown perivascular inflammation and endothelial proliferation of small arteries and arterioles of the skin Hyaline thrombi seen in fine vessels are considered a nonspecific effect of sluggish blood flow One may deduce that organic obstruction accompanies the evident vasospasm Treatment has consisted of rest, sedation, and vasodilating measures Sympathectomy has been of relatively little value

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This study was aided by a grant from the Massachusetts Heart Association

Drs Olga Leary Jr and A James McAdams made the pathological studies

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ANALGESIA WITH NITROUS OXIDE–OXYGEN–CURARE FOR MAJOR SURGERY IN THE POOR-RISK PATIENT

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and
Robert C Storrs, M D, Hanover, N H

• *Experience with more than 200 patients, most of them between the ages of 70 and 95, showed that anesthesia with nitrous oxide, oxygen, and a relaxant of the curare group gave excellent results in major surgery, provided certain precautions were observed Premedication consisted of secobarbital sodium, scopolamine hydrobromide, and either morphine or meperidine hydrochloride The type of gas machine is important because of the superiority of the demand-flow, fractional, or nonrebreathing technique The induction must allow a period of 15 to 30 minutes for denitrogenation, during which the patient settles down to an equilibrium that can be maintained, in some patients, with an oxygen percentage of 30 to 50% The relaxants used were gallamine triethiodide, succinylcholine chloride, or tubocurarine, the last named being avoided in patients with pulmonary fibrosis, emphysema, or bronchial asthma The relaxant was administered only when denitrogenation was believed to be complete*

The anesthesia was kept light, so that the electroencephalograms resembled the records from the wakeful state Several experiences here described convinced the authors that deep anesthesia greatly increases the danger of hypotension and that changing from ether to nitrous oxide obviated the need for vasoconstrictor drugs The fact that nitrous oxide does not depress the respiratory center, does not irritate the respiratory epithelium, and does give adequate alveolar ventilation was shown by detailed biochemical studies in 13 patients It is believed that this type of anesthesia permitted more deliberate, extensive, and definitive operations in poor risk patients

As the number of older people in our population steadily increases, the surgeon is faced more frequently with the debilitated, fragile patient in need of surgery We have found conventional methods of general anesthesia administered in the usual surgical planes are often poorly tolerated by this group This report summarizes a 10-year clinical study being carried on in the operating rooms and laboratories of the Hitchcock Hospital indicating the safety and value of light analgesia induced with nitrous oxide–oxygen–curare anesthetic as the method of choice in the conduct of major surgery on poor-risk patients By "poor-risk patient" we mean one who, by virtue of old age, general debility, or specific disease, constitutes a particularly serious problem in the selection and administration of a general anesthetic [1] In this study we use the term "curare" in the broad sense to include three muscle relaxants, namely tubocurarine, gallamine triethiodide (Flaxedil), and succinylcholine chloride

It has been shown that depression of the myocardium [2] and vasomotor center may occur in the deeper planes of anesthesia The integrity of the peripheral vascular bed is impaired as the anesthesia is deepened, with resulting fall in blood pressure and occasionally the production of shock [3] The respiratory center is also depressed, and adrenal function may be affected adversely as greater depths are reached The healthy subject can usually adjust to these changes in body physiology, but the poor-risk patient has no such margin In spite of these observations many authors actually have stressed the concept of safety to be obtained by utilizing the deeper anesthetic levels [4] They have suggested that light-plane anesthesia may be harmful to cardiovascular function by virtue of nonsuppression of traumatic autonomic reflexes common to surgery and anesthesia

Because of these differences of opinion, many problems peculiar to light-plane anesthesia demanded further clarification It is important to know (1) the level

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From Dartmouth Medical School and the Hitchcock Clinic (Drs Heller, Watson and Storrs) and the Hitchcock Foundation (Dr Watson)

Read at the Ninth Clinical Meeting of the American Medical Association, Boston, Nov 29 1955 of anesthesia resulting when nitrous oxide–oxygen is combined with the muscle-relaxant agents for major surgery, (2) the effect of extremely light anesthesia on cardiovascular homeostasis, (3) the effects on cardiac rate, rhythm, and conduction, (4) the respiratory problems, including breath holding, irregular breathing, pulmonary ventilation, bronchospasm, and laryngeal irritability, and (5) the incidence of excitement, movement, swallowing, and vomiting during light anesthesia This presentation is concerned with solving some of these problems

Administration of Nitrous Oxide–Oxygen–Curare

Our method of administration of nitrous oxide muscle-relaxant anesthetics has been outlined previously [1] However, a few important points should be emphasized The main agent is nitrous oxide Too much dependence should not be placed on the muscle relaxants There must be a proper balance between the drugs for premedication, the nitrous oxide, and the curare" agents No cyclopropane or ether is used, and local infiltration of the skin incision is not necessary We do not use thiopental (Pentothal) sodium in the light nitrous oxide anesthetic technique for the poor-risk patient This agent may at times help the induction of anesthesia, but on the other hand it may complicate the anesthetic effects of nitrous oxide Thiopental sodium is broken down slowly in the body When administered too rapidly, it may cause a depression of respiration and also cardiovascular decompensation In some individuals this drug, even in small amounts, may provoke laryngeal and bronchiolar muscle spasm with their harmful sequelae We have observed that in patients with chronic pulmonary disease, there are fewer respiratory problems when nitrous oxide is given without the addition of thiopental sodium

Proper premedication is an important component of light anesthesia with nitrous oxide This consists of secobarbital sodium, 25 to 100 mg, morphine, 4 to 8 mg, or meperidine hydrochloride, 25 to 75 mg, and scopolamine hydrobromide, 0 2 to 0 3 mg For example, an elderly patient may receive secobarbital, 25 mg, meperidine, 25 mg, and scopolamine, 0 3 mg, one hour prior to induction Before nitrous oxide is administered, an evaluation is made of the effect of the premedication We prefer to have the patient sleepy, yet he should answer questions readily If the premedication is inadequate, we may add secobarbital sodium in 10 to 15 mg fractional intravenous doses until the proper effect is obtained Experience is required in estimating the optimal dosage Overmedication is undesirable because the beneficial effect of light nitrous oxide anesthesia is then neutralized

Scopolamine is used in preference to atropine because the former has greater sedative properties plus good drying effect It has been the experience of older anesthetists, who used nitrous oxide extensively before the advent of curare, that this type of anesthesia is handled much more easily when the premedication is with scopolamine [5] Many authors decry the use of scopolamine in older people and cite the possibility of delirium and mania following administration of this drug This has not been our experience with a large number of older subjects We have found that scopolamine is an essential aid in nitrous oxide anesthesia

Meperidine hydrochloride, 10 to 25 mg, is occasionally also given intravenously in fractional amounts during the early part of the operation After the first half hour, intravenous supplements rarely are given Our observations have led us to believe that premedication agents are of most help during the induction until denitrogenation is more complete Successful administration of nitrous oxide requires a thorough understanding of denitrogenation [5] Once the patient "settles down" (and this may require 15 to 30 minutes), the administration of the anesthetic becomes easier The subject remains asleep with administration of less nitrous oxide and more oxygen Adequate anesthesia with nitrous oxide can subsequently be obtained in some patients with an oxygen percentage of 30 to 50% We emphasize the fact that induction is the most difficult phase and determines to a large degree the subsequent course of the anesthesia

We believe that the type of gas machine is important in the administration of nitrous oxide–oxygen anesthesia The combination demand-flow—circle absorption machine has definite advantages Clement has pointed out for many years the superiority of the demand-flow, fractional, or nonrebreathing technique for a faster, smoother induction and for rapid complete denitrogenation [5] Elimination of nitrogen is important in order to provide a higher concentration of both oxygen and nitrous oxide in the alveoli Furthermore, there is more precise control with the demand-flow machine, whereby the mixture of nitrous oxide and oxygen can be changed from breath to breath, according to the requirements of the patient During the early period of anesthesia an estimate is made of this requirement and of the individual's susceptibility to nitrous oxide, to curare, and to the analgesic supplements for intravenous use

Successful light nitrous oxide anesthesia does not depend on the choice of a specific muscle-relaxant drug We have had good results with any one of three agents tubocurarine, gallamine triethiodide, and succinylcholine chloride The muscle relaxant should not be added too early in the induction period These curare agents should be given only when complete denitrogenation occurs, otherwise there may be a stormy course until the full anesthetic effect of nitrous oxide is realized Then either tubocurarine or gallamine triethiodide is added in fractional amounts, a succinylcholine chloride intravenous drip also has been used effectively Use of tubocurarine is avoided in those patients who are prone to develop bronchospasm, namely, those with pulmonary fibrosis, emphysema, or bronchial asthma For this group, we use either gallamine triethiodide or succinylcholine chloride At the end of the procedure, muscle tone returns more quickly after use of nitrous oxide than it does after the administration of the more potent anesthetic agents Prolonged apnea has not been a problem

When respiratory exchange is diminished, assisted breathing is carried out with the conventional circle absorption part of the combination machine, and an oropharyngeal or nasopharyngeal airway is routinely inserted. We do not hesitate to intubate if the respirations cannot otherwise be assisted properly. Succinylcholine chloride is used to facilitate intubation prior to pulmonary or cardiac surgery. After time for denitrogenation has elapsed, succinylcholine chloride is administered intravenously up to the point of apnea. While the relaxant is taking effect, the mixture of gases is changed to a 50-50 ratio of nitrous oxide and oxygen and ventilation is vigorously assisted. The larynx and trachea are quickly sprayed with 0.5 to 1% tetracaine (Pontocaine) hydrochloride. The face mask is reapplied and respirations are again assisted with the mixture of 50% oxygen. Then intubation is performed by direct vision and respirations are assisted as necessary. A succinylcholine chloride drip may be continued throughout the procedure, or more often, after the initial effect of the succinylcholine chloride has worn off, a change is made to intermittent gallamine triethiodide injections. During the surgical procedure the nitrous oxide percentage is varied according to the patient's requirements. At the end of the operation the patient is given 100% oxygen for several minutes in order to supply a high alveolar oxygen concentration during this period when a large volume of nitrous oxide is being released from the body tissues into the lungs.

Major Surgery with Nitrous Oxide–Oxygen Anesthetic

Depth of Anesthesia.—We have made use of the electroencephalogram as a measure of depth of anesthesia.[1] Tracings were taken in the patient before premedication for control purposes; these were repeated after premedication and prior to the administration of nitrous oxide; further tracings were taken at intervals throughout the giving of nitrous oxide and surgery; finally, recordings were made in the postanesthesia period.

Electroencephalographic studies by Courtin, Bickford, and Faulconer with the more potent anesthetic agents have shown that ether, cyclopropane, and thiopental sodium depress the brain wave potential, producing distinct patterns at various depths of anesthesia.[6] Artusio in comparable studies on analgesia with ether reported that "an analysis of electroencephalographic tracings indicated that a distinct pattern could be associated with analgesia, different from that seen in the conscious patient."[7] The pattern when ether was used showed predominantly rhythmic sinusoidal activity of 20 to 22 cps with an amplitude of 30 to 40 µv.

During analgesia with nitrous oxide, on the other hand, our electroencephalographic tracings showed no such changes. In fact, they closely resembled the control record of the wakeful state. There is no alteration in amplitude, rhythmicity, or wave form. A slight slowing of the alpha pattern was noted occasionally, but it always remained within the normal frequency range. A typical electroencephalographic record taken during analgesia with nitrous oxide is shown in figure 1. At this extremely light level of anesthesia, amnesia, unconsciousness, and analgesia are present. When the nitrous oxide concentration is lightened, the patient may show slight movements, shake his head, wrinkle his forehead, or moan. Ordinarily these movements are rarely observed with the technique we have described. Once anesthesia has been induced and stabilized, delirium or excitement is not seen, there is good surgical relaxation from the curare drugs, and swallowing or vomiting does not occur. It should be noted that the electroencephalogram is not necessary in the practical use of nitrous oxide analgesia. As an investigative tool, it has proved helpful.

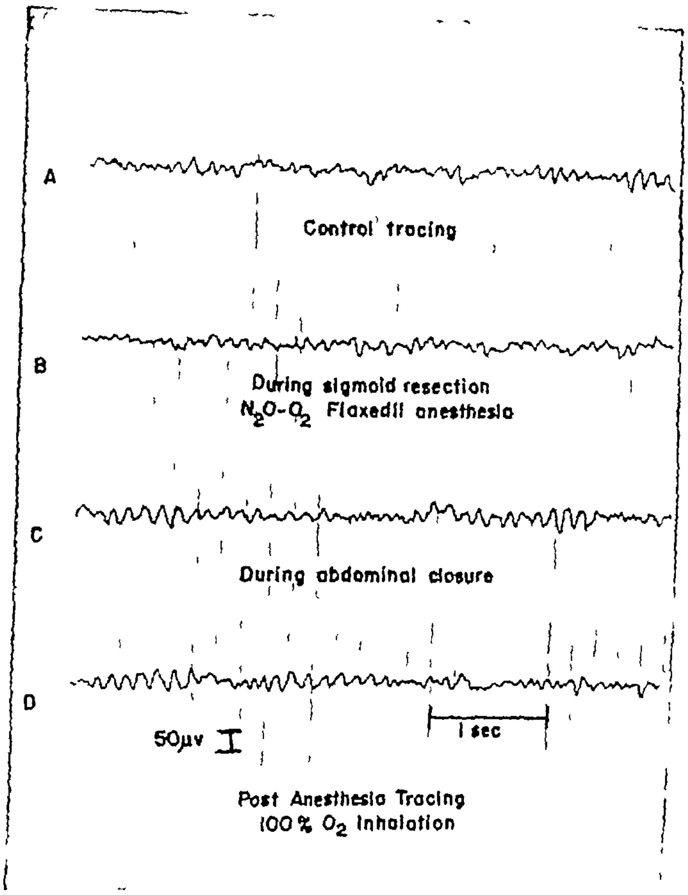

Fig 1.—Electroencephalographic study of 69 year-old patient during anesthesia with nitrous oxide–oxygen–gallamine triethiodide during resection of sigmoid and oophorectomy for *obstructing cancer of sigmoid*. *A*, *control tracing (prior to premedication)* shows slightly irregular 8 to 9 per second alpha waves with some intermittent flattening. *B*, tracing during surgery (duration of nitrous oxide one hour). No visible *effect of pre*medication is shown or any change from control tracing of wakeful state. *C*, tracing during closure (duration of administration of nitrous oxide two and one-half hours). Alpha waves more prominent *and at times slightly* slower (7 to 8 per second) with some periods of intermittent *flattening* of record. *D*, tracing during use of 100% oxygen with patient awakening, no change in tracing.

Blood Pressure During Anesthesia.—Much can be learned by comparing blood pressure recordings made during anesthesia with ether with those made during the administration of nitrous oxide–oxygen.

It has been observed clinically for a long time that some patients develop a marked fall in blood pressure during or after induction of anesthesia with ether, even in the light-plane surgical stage. Recently Brewster,[2] in an excellent study, elucidated the mechanism of this response. He emphasized the "potential direct depressing effect of ether on the myocardium. In some patients there is insufficient reflex release of epinephrine and norepinephrine from the adrenal medulla and sympathetic nerve endings." Subsequently the cardiac output decreases. Persons with cachexia, persons in toxic condition, debilitated persons, and those with poor thyroid and adrenal function are especially prone to show a depressed myocardium during administration of ether These are the very patients who are excellent candidates for light nitrous oxide anesthesia

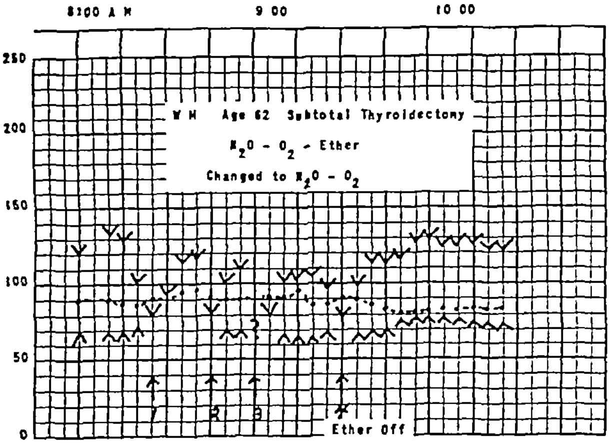

Fig 2—*Chart showing myocardial depression in 62 year-old patient* during anesthesia with ether First plane stage 3 occurring at 1 2 3 and 4 The use of ether was discontinued and it was "blown off" at these points With recovery of the blood pressure ether was again administered resulting in hypotension on each occasion At 4 the use of ether was permanently discontinued and nitrous oxide—oxygen was administered for the remainder of the operation

We have observed numerous patients with a marked fall in blood pressure during anesthesia with ether When the level of anesthesia is lightened by "washing out" the ether, the blood pressure tends to return toward the original level After the elimination of ether, excellent surgical anesthesia can be maintained for long periods of time with nitrous oxide—oxygen plus a muscle relaxant The blood pressure no longer undergoes the marked depression previously noted

A 62-year-old patient received nitrous oxide—oxygen—ether anesthetic for a contemplated subtotal thyroidectomy (fig 2) This patient apparently had become hypothyroid during her medical preparation for thyroid surgery Whenever a small amount of ether was added to the anesthetic, the blood pressure fell to a low level By eliminating the ether, the blood pressure returned toward the original level This occurred four times during the early part of the operation Finally the use of ether was permanently discontinued, and anesthesia was maintained with nitrous oxide—oxygen The blood pressure became adequate and maintained a steady course

Autonomic reflexes may be very disturbing when they occur during anesthesia Marked vagotonia is frequently noted during anesthesia with ether immediately after the induction Also reflex vagal stimulation from surgical manipulation of chest wall, rib periosteum, neck, pulmonary hilus, and abdominal and pelvic structures may give rise to hypotension, bradycardia, and auriculoventricular conduction defects Atropine given intravenously usually offers good protection from excessive vagotonia Others have used tubocurarine to block vagal impulses However, the protective effect of curare has not been consistent Our experience has shown that a lighter level of anesthesia is the more rational therapy for vagotonia occurring during surgery and anesthesia

A 57-year-old patient (fig 3) showed a fall in blood pressure and bradycardia after the induction of anesthesia with thiopental sodium—nitrous oxide—ether and intubation Blood pressure fell from 130/70 to 80/50 mm Hg, and the patient's pulse rate slowed from 110 to 60 beats per minute No atropine was used in this case, the ether was blown off and nitrous oxide—oxygen substituted Tubocurarine was later added for muscle relaxation The blood pressure and pulse rate started to rise after a short interval and within 15 minutes were back to their original level Vagotonia with hypotension and bradycardia is a rare occurrence during light anesthesia with nitrous oxide

During anesthesia with ether in upper abdominal surgery, *reflex celiac plexus hypotension* is often a problem Treatment of this condition with drugs given intravenously has been disappointing Some use atropine and others recommend physostigmine salicylate[4b] We have found that neither drug is very effective in improving this type of blood pressure depression However, our observations in a large number of patients have demonstrated the beneficial effect of a lighter plane of anesthesia

An example of this reflex hypotension was demonstrated in a 77-year-old patient (fig 4) who underwent abdominal surgery The anesthetic used was thiopental sodium—nitrous oxide—oxygen—ether During the exploration of the upper abdomen, the blood pressure fell The manipulations were stopped and there was an improvement for a few minutes, at which time further surgical exploration was attempted The systolic pressure again fell to 75 mm Hg and the pulse became weak At this time the administration of ether was discontinued and use of nitrous oxide—oxygen started There was no further difficulty encountered for the remaining part of the operation (three and one-half hours)

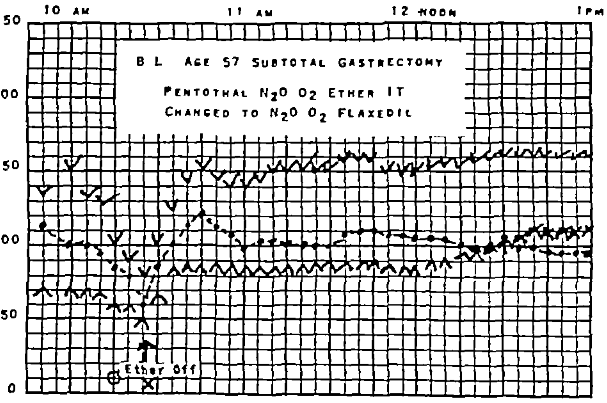

Fig 3—Chart of patient aged 57 years showing increased vagotonia following induction of anesthesia with thiopental sodium—nitrous oxide—oxygen—ether Blood pressure fell to 80/50 mm Hg and the pulse slowed to 60 beats per minute At X the use of ether was discontinued and "blown off" Anesthetic was changed to nitrous oxide—oxygen Gallamine triethiodide was added later Blood pressure and pulse rate showed a stable course during the light plane nitrous oxide analgesia No atropine was used

bronchiolar musculature However, this is often uncertain in man during severe episodes It is more difficult to explain the beneficial action of atropine at the myoneural junction of the recurrent laryngeal nerve and the striated laryngeal muscles This drug probably does help by its drying of secretions [11] On the other hand, succinylcholine chloride is extremely effective in its utter relaxation of laryngeal muscles and the spastic thoracic and abdominal muscles involved in the "bucking" process However, the effect of succinylcholine chloride on the smooth musculature of the bronchioles is not entirely clear There may be some unexplained blocking effects of thoracic autonomic ganglions Recently Peters has shown that "bronchoconstriction produced experimentally in animals by increasing the pCO_2 was not relieved by succinylcholine even when two or three times the dose necessary to cause skeletal muscle relaxation was given" [12]

Ether with nitrous oxide has been used successfully for the asthmatic patient It has been observed that bronchospasm is relieved when deep anesthesia with ether is produced However, ether is itself somewhat irritant and the induction period may be stormy with coughing, breath holding, cyanosis, and hypoxia There may also be a depression of the cardiovascular system We therefore prefer to use nitrous oxide—oxygen plus gallamine triethiodide or succinylcholine chloride without ether for this type of patient Nitrous oxide is nonirritating to the respiratory epithelium, and a smooth induction can be expected We have observed that assisted breathing is readily performed in the patient with pulmonary asthma, pulmonary fibrosis, or emphysema Adequate exchange of gases can be accomplished Our impression clinically is that nitrous oxide does not produce bronchospasm, and with nitrous oxide we have not encountered the respiratory problems that are frequently seen with other anesthetic drugs in patients with pulmonary disease

Because of the observed benign effect of nitrous oxide in patients with pulmonary abnormality, we have also utilized this light method of anesthesia for all types of cardiopulmonary surgery Usually endotracheal intubation is accomplished with the single lumen tube In the patient with copious secretions, the double lumen endotracheal bronchial catheter of Carlens is used This allows individual lung control and frequently greatly facilitates the surgery Another distinct advantage is the safety with which electrocautery may be used during anesthesia with nitrous oxide—oxygen for thoracic surgery

Blood Gas Studies During Anesthesia with Nitrous Oxide—Oxygen—Curare

In addition to noting the striking clinical course of these patients, it is important to know the specific blood gas changes that are occurring During the early part of the anesthesia the oxygen percentage in the demand-flow mixture is 20 to 25% As the operation proceeds, the oxygen percentage may be increased up to a 50% concentration in the inhaled gases From preliminary blood gas studies, we have shown that normal oxygen saturation is maintained during anesthesia with nitrous oxide when the oxygen percentage is in the range of 20 to 25

We have also carried out preliminary studies indicating that adequate, effective alveolar ventilation is maintained during anesthesia with nitrous oxide Hand-assisted ventilation is used in all cases, whether or not the patients are intubated Tidal air is maintained at between 500 and 700 cc, with minute ventilation between 8 and 15 liters Blood samples are drawn from the brachial artery through a Cournand needle with heparin syringes These have been taken at various stages of the anesthesia and surgery Determination of carbon dioxide (volumes per cent), oxygen (volumes per cent), and percentage of saturation is done using standard Van Slyke and Neill techniques modified by the method of Goldstein Determinations of pH are made immediately after the blood is drawn, using a calibrated Cambridge pH meter Values of pCO_2 have been calculated from the nomogram of Singer and Hastings

Thirteen cases have been studied in detail Blood oxygen saturation remained above 90% except during the lung collapse stage in two patients with severe pulmonary abnormality who were undergoing thoracic surgery in whom 82 and 87% were recorded Mean oxygen saturation in all cases during anesthesia was 96%, with 105% the highest recorded In three instances the preanesthesia saturation was 87%, rising in the postinduction period to 95, 99, and 94% In general, pH determinations were in the normal range before induction of anesthesia There appeared to be a slight gradual drop during anesthesia, characteristic examples are the dropping of determinations from 7 35 to 7 29 and from 7 37 to 7 26 in two patients undergoing pulmonary lobectomy pCO_2 values were calculated The mean pCO_2 was 50 mm Hg with a range between 34 and 63 mm Hg In this preliminary study, our observations were made on elderly patients with pulmonary disease Further studies are now being carried out on more normal subjects Numerous blood potassium determinations were done in an attempt to note any rise during or at the end of surgery with the patient receiving 100% oxygen All values were within normal limits

Comment

Our studies of electroencephalograms in patients during anesthesia with nitrous oxide showed practically no change from the tracings obtained in the wakeful state It is interesting to note that other anesthetic agents produce distinct patterns at any depth of anesthesia [6] During the extremely light level of anesthesia obtained with nitrous oxide, there is unconsciousness, analgesia, and amnesia In our experience, there has been no incidence of memory of any surgical procedure With the addition of muscle-relaxant drugs, good relaxation in surgery is obtained If the level should be allowed to become excessively light, the patient can be quieted more readily at this time than during the original induction of anesthesia. The management of anesthesia becomes relatively easier as the duration of anesthesia increases.

The classic teachings of Guedel are not adequate to describe the light plane of anesthesia with nitrous oxide, in view of the electroencephalographic recordings we have obtained. We need a new classification of anesthetic levels, based on recent observations of major surgery during light-plane anesthesia.[13] For lack of a more precise term, we are referring to this as the level of analgesia. Contrary to traditional ideas, it can be stated that light-plane analgesia is not harmful to cardiovascular function by virtue of nonsuppression of traumatic autonomic reflexes. Actually, depressant vagal and celiac plexus reflexes occur more frequently during the deeper planes, and these untoward changes are obviated by lightening the anesthesia. There is also good evidence that nitrous oxide does not produce myocardial depression of the type that is seen with ether. We have observed a remarkably stable blood pressure during all phases of analgesia with nitrous oxide in the poorest of risks. Furthermore, we believe that endotracheal intubation may be done with safety during the analgesia level. The only change in the cardiac mechanism we have observed is a sinus tachycardia, which is seen occasionally in light anesthesia and does not appear to affect the patient adversely.

Cardiac disturbances during anesthesia have been related to an imbalance of the autonomic nervous system.[4a] Hypoxia and hypercapnia play a role in intensifying this imbalance. The former enhances existing arrhythmias and conditions the myocardium to eventual failure. Recent studies have shown that hypercapnia increases the effects of vagal stimulation on the heart.[14] Carbon dioxide retention has been emphasized as one of the main factors in the production of serious cardiac disturbances, including cardiac arrest.[15] It has not been determined as yet whether the actual level of pCO_2 or the abrupt change in carbon dioxide concentration is the responsible mechanism.[16] Changes in electrolytes, especially the plasma potassium level, are also involved in the altered physiology. In addition, the histotoxic effects on the myocardium from the more potent anesthetic agents must be kept in mind.

In order to explain why cardiac irritability is greater and more frequent during anesthesia than it is in the wakeful state, autonomic imbalance, surgical reflex stimuli, and hypoxia and hypercapnia have all been implicated. We would like to add another important variable, namely, the depth of anesthesia. For we believe that the deeper the anesthesia, the more dangerous are these factors of imbalance, reflex stimuli, lack of oxygen, and excess of carbon dioxide. Conversely, we believe that operative cardiac disturbances, including cardiac arrest, can be largely prevented by the use of light anesthesia. It follows that greater safety during cardiac surgery per se is assured.

We do not advocate the use of antiarrhythmic drugs for the prime purpose of preventing cardiac arrhythmias during anesthesia. We use these drugs preoperatively only for the established medical indications irrespective of anesthesia and surgery. As we have stressed previously,[1] these drugs are not entirely pure in their behavior because of their well-known toxic side-effects. Due to the low incidence of ventricular irritability during light anesthesia with nitrous oxide, we can avoid the prophylactic use of quinidine and procainamide hydrochloride prior to anesthesia. The safety of their prophylactic use has not been established. These drugs merely serve to cover up the potentially harmful insults of deep anesthesia. It is preferable to use the techniques of light anesthesia.

During light anesthesia, because of the excellent cardiovascular homeostasis, it is rarely necessary to use vasoconstrictor drugs in order to maintain an adequate blood pressure. If possible, it is preferable to avoid use of the pressor amines during general anesthesia because much remains to be learned about the constrictor actions of these drugs and also about the sensitization of the myocardium, especially in patients with coronary artery disease. These agents have also been advocated for their inotropic action on the myocardium depressed by ether when reflex adrenal response is inadequate.[2] This is not a problem during anesthesia with nitrous oxide in which myocardial contractility is not affected.

We have also observed that blood transfusion requirements are less in light anesthesia than in deeper levels in which the blood pressure is disturbed through myocardial depression, loss of vasomotor tone, and loss of integrity of the capillary bed. We have found the adrenal response to be quite adequate in even the most cachectic patients. It is seldom necessary to resort to the use of intravenous therapy with hydrocortisone during light anesthesia with nitrous oxide. We believe that in many instances poor-risk patients with semblance of adrenal exhaustion are given adrenal cortical solutions intravenously. Actually, the real factors responsible for the hypotension are the depth of anesthesia, hypoxia, and hypercapnia. These factors should be ruled out before resorting to intravenous therapy with hydrocortisone, which can produce a wide variety of responses, many undesirable.

Our observations of blood pressure during emergency surgery on critically ill patients in shock have demonstrated that anesthesia with nitrous oxide interferes minimally with the integrity of the peripheral vascular bed. Hershey and co-workers have demonstrated that the intrinsic tone, vasoconstriction, vasomotion, and reactivity of the peripheral vascular bed are more seriously deranged during deep anesthesia.[3] Patients who are in profound shock from severe infections or marked blood loss are especially vulnerable in deep anesthesia.

Many critical readjustments in body physiology take place at the end of anesthesia and surgery, and also in the immediate postoperative period. There is a change in the blood carbon dioxide level, and cardiac irritability may be high It has been suggested that cardiac arrest occurring during this period is probably intimately associated with deep anesthesia occurring toward the conclusion of the operation[15] These factors again emphasize the value and safety of maintaining throughout the operation a light plane of anesthesia with a nontoxic drug like nitrous oxide After light anesthesia, the patient awakens quickly and cooperates early by breathing deeply and coughing effectively, thereby preventing pulmonary complications The blood pressure, too, follows a stable course in the immediate postanesthesia interval

It has been stated that in some patients the muscle-relaxant drugs produce a fall in blood pressure due to the release of histamine or to a sympathetic ganglionic blockade A recent survey suggests that the "curare" group of drugs may show an inherent toxicity and may contribute to the death of a considerable number of patients through circulatory collapse[17] Our studies and experiences with the poorest of risks have been entirely different We believe that these untoward side-effects of the muscle relaxants are related to concomitant deep anesthesia and are no problem during light anesthesia with nitrous oxide

Summary and Conclusions

As a result of 10 years' experience with light analgesia with nitrous oxide—oxygen—curare in "poor-risk" patients undergoing major surgery, we found that electroencephalographic studies in patients given these anesthetics showed no significant changes from those of the wakeful state, documenting the extremely light level of anesthesia Cardiovascular function was well maintained and depression of blood pressure and autonomic reflex disturbances were minimal Disturbances of cardiac rate, rhythm, and conduction were infrequent The incidence of vagotonia, ventricular irritability, and cardiac arrest was low Full respirations were readily maintained Breath holding, vomiting, laryngospasm, and bronchospasm were not problems Patients with pulmonary insufficiency tolerated well this type of anesthesia Blood gas analyses showed arterial blood oxygen saturation to be well maintained Preliminary pCO_2 studies showed excellent elimination of carbon dioxide Untoward cardiovascular effects of the muscle-relaxant drugs were not observed during light anesthesia with nitrous oxide From these data we have concluded that in the "poor-risk" group the depth of anesthesia is of great importance The cardiovascular dangers inherent in autonomic imbalance, reflex stimuli, lack of oxygen, and excess of carbon dioxide increase with the depth of anesthesia The lighter the anesthesia, the more the patient is protected by the compensatory mechanisms of the wakeful state Utilizing analgesia with nitrous oxide—curare, we have been able to carry out prolonged procedures safely on elderly or debilitated patients who would have been rejected for this type of surgery only a few years ago Thus, the operation may be more deliberate, extensive, and definitive

2 Maynard St (Dr Heller)

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Treatment of Acute Leukemia—Folic acid antagonists, the purine antagonists, and the steroid hormones are clearly of value in the treatment of human acute leukemia The choice of what agent to employ initially in the therapy of acute leukemia, however, is dependent, at least in part, on the age of the patient A high rate of initial remission in children with acute leukemia can be obtained with *cortisone or* corticotropin but when relapse occurs, a second remission rarely can be induced by the readministration of either compound In such instances, repeated remissions may be observed following treatment with either the purine or the folic acid antagonists In adults having acute leukemia, a higher rate of initial remission can be produced with 6-mercaptopurine than with the antifolic acid compounds or the steroid hormones Hence 6-mercaptopurine would seem *the* drug of choice to be used initially in the adult In acute leukemia in humans the existence of or eventual development of resistance to antileukemic agents seriously limits the possibility for adequate control of the disease For this reason, various combinations of chemotherapeutic agents have been utilized in the hope that subsequent remissions could be obtained in drug resistant patients It was shown by Burchenal (and later observed by the authors) that the simultaneous administration of azaserine and 6-mercaptopurine will induce remission in some patients with acute leukemia in whom a resistance to 6-mercaptopurine alone has developed —B E Hall, M D , F M Willett, M D , T V Feichtmeir, M D , E B Reed, M D , and W F Dowling, M D , Current Trends in Cancer Chemotherapy, *California Medicine*, January, 1956

CLINICAL STUDIES ON A NEW CARDIAC GLYCOSIDE, ACETYLDIGITOXIN

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• Acetyldigitoxin was used in 80 patients with heart failure of varying degree and causation For initial digitalization, 1 5 to 2 mg was given by mouth in divided doses over a 24 hour period for maintenance, 0 1 mg was generally given by mouth once or twice daily Intravenous administration was tried in a few patients, and the maintenance dose by this route was found to be about two thirds of the oral maintenance dose

Anorexia, nausea, and electrocardiographic changes characteristic of digitalis overdosage were observed in 21 sicker patients in whom administration was continued deliberately to the point of therapeutic response or toxic effect These subjective and objective signs of toxicity generally subsided within 24 to 72 hours The promptness of their disappearance is an advantageous property of acetyldigitoxin

Many reports [1] have appeared that document extensive European clinical trials with acetyldigitoxin (Acylanid), a new purified cardiac glycoside prepared first by Stoll and Kreis [2] by the enzymatic cleavage of a glucose molecule from lanatoside A, the glycoside derived from Digitalis lanata However, the few published American studies [3] on this agent involved relatively small series of patients The present paper reports selected observations on a larger number of cardiac patients, some of whom have been maintained on therapy with acetyldigitoxin for almost two years The data provide the basis for a therapeutic evaluation of the new compound that confirms the clinical impressions of European investigators but establishes somewhat lower dosage requirements

Methods and Materials

The subjects of the study were 80 patients all but 4 of whom were hospitalized at Montefiore Hospital Seventy-nine had clinically well-documented cardiac disease on the following etiological bases rheumatic fever 35, hypertensive or arteriosclerotic heart disease 31, and other causes 14, including congenital heart disease, chronic constrictive pericarditis, chronic myocarditis of unknown etiology, and hyperthyroidism One patient was a 44-year-old man without known heart disease who developed auricular fibrillation with a rapid ventricular rate 12 days after a previously uneventful right pneumonectomy for a bronchogenic carcinoma

Ages of the subjects ranged from 5 to 85 years, 21 were younger than 40 years, 31 were from 40 to 60 years, and 28 were older than 60 years of age All the cardiac patients exhibited objective or subjective signs of cardiac failure of varying degrees, including exertional dyspnea and tachycardia, orthopnea, rales, pleural effusion, peripheral edema, hepatomegaly, ascites, increased venous pressures, and/or prolonged circulation times In regard to the basic cardiac rhythm, 34 had sinus rhythm, 45 auricular fibrillation, and one auricular flutter

Twenty patients were studied on the cardiovascular metabolic research ward, where it was possible to obtain not only rigid control of the fixed food and fluid intakes and complete collections of urine and stools for balance measurements but also accurate apical rates and frequent electrocardiograms Patients on the regular, as well as the metabolic, wards were maintained on a low-sodium intake (15 to 20 mEq) Generally, as has been the practice on this service for some time,[4] whenever doses of digitalis were either being increased to, or maintained near, the point of toxicity, 45 to 120 mEq of a palatable preparation of organic potassium salts was given orally in divided doses Such doses reduce the incidence of electrocardiographic manifestations of digitalis toxicity,” which otherwise might reflect not overdosages of digitalis but the myocardial potassium depletion occurring in congestive failure spontaneously or after administration of diuretics [5] Mercurial diuretics were given as indicated If diuretic response was poor, mercurial injections were preceded by three or four days of treatment with 6 to 9 gm of ammonium chloride daily, and followed two hours later by the slow intravenous injection of 0 5 gm of aminophylline [6] Body weights were recorded daily, and repeated venous pressure and arm-to-tongue circulation times were determined with dehydrocholic acid (Decholin)

Three general types of observations on acetyldigitoxin therapy were collected In 18 patients who were previously not receiving any digitalis preparation digitalization was achieved with divided doses of acetyldigitoxin orally for 10 to 148 hours In the 62 previously digitalized patients, of whom 39 had been maintained for a long period on therapy with digoxin, 15 on therapy with digitoxin 6 on therapy with digitalis leaf, and 3 on therapy with gitalin (Gitaligin), the equivalent daily maintenance dose of acetyldigitoxin orally was first established Then in any patients whose digitalization was not considered to be optimal, increased doses (0 1 or 0 2 mg two to four times daily) of acetyldigitoxin were given until either a better therapeutic response or evidence of digitalis intoxication was obtained (see below) If under these circumstances only anorexia, nausea, malaise or weakness were noted, either increased or maintenance dosage schedules were continued, but, once there was electrocardiographic evidence (prolonged PR interval, Wenckebach phenomenon, auricular fibrillation, or ventricular premature contractions) of intoxication,

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which did not subside when increased doses of potassium salts were given orally, digitalis therapy was discontinued and repeated electrocardiograms were taken to determine how long the abnormalities persisted Then, either the previous or a lower daily maintenance dosage schedule, which did not produce signs of toxicity, was instituted In a few patients after establishing the maintenance dose orally, daily doses were given intravenously to compare the two routes of administration

Results

Initial Digitalization—Table 1 summarizes the pertinent clinical data and the doses of acetyldigitoxin orally required for initial digitalization and subsequent maintenance in the 18 undigitalized subjects Generally, an initial dose of 0 8 to 1 2 mg of acetyldigitoxin was followed by 0 4-mg doses at four-hour to six-hour intervals until optimal therapeutic response or evidence of intoxication was elicited In all 18 patients tachycardia was present, consequently, the pulse rate served as an index of the myocardial response to digitalization, particularly in the 14 patients with sinus rhythm, whose tachycardia was due to cardiac failure Thus, reduction of the heart rate to 65 to 75 per minute without signs of overdosage generally reflected clinical improvement as manifested by increased diuresis or decrease in dyspnea, fatigue, rales, peripheral edema, hepatomegaly, venous pressure, and/or circulation time Therefore, when the pulse rate had fallen to 70 or less per minute, digitalization was considered to be adequate and maintenance therapy was begun

TABLE 1—*Doses of Acetyldigitoxin Required for Initial Digitalization from 10 to 148 Hours and Subsequent Maintenance in Eighteen Patients*

Case No	Age	Sex	Etiology*	Cardiac Rhythm	Initial Digitalization		Daily Maintenance Dose, Mg
					Dose Mg	Time Hr	
1	47	F	HCVD	Sinus	1 8	10	0 1, b i d
2	41	F	RHD	Sinus	1 6	24	0 1, b i d
3	60	F	RHD	Sinus	1 8	24	0 1, q i d or b i d
4	58	F	HCVD	Sinus	2 0	24	0 1, b i d
5	37	F	RHD	Sinus	2 2	24	0 1, b i d
6	44	M	Lung Cancer	AF†	2 2	24	
7	85	F	AsHD	AF	2 4	24	0 1 b i d
8	63	F	HCVD	AF	2 4	48	0 1, b i d
9	43	F	RHD	Sinus	2 4	48	0 1, b i d
10	30	F	RHD	Sinus	2 5	48	0 1, b i d or q i d
11	72	F	AsHD	Sinus	2 8	48	0 1 b i d
12	65	F	AsHD	Sinus	2 8	60	0 1 b i d
13	5	M	CHD	Sinus	0 675	72	0 025 b i d
14	68	M	AsHD	Sinus	2 8	72	0 1 q i d
15	57	F	CHD	Sinus	3 0	72	0 2 b i d
16	29	F	RHD	Sinus	2 8	120	0 1, b i d
17	45	F	RHD	AF	3 2	120	0 1, b i d
18	52	F	CCP	Sinus	4 8	148	0 1 b i d

* HCVD = hypertensive cardiovascular disease RHD = rheumatic heart disease AsHD = arteriosclerotic heart disease and CCP = chronic constrictive pericarditis

† AF = auricular fibrillation

The ranges of the total dose required for adequate digitalization with acetyldigitoxin given orally over the several time intervals studied were as follows in 24 hours (seven patients), 1 8 to 2 4 mg, in 48 hours (four), 2 4 to 2 8 mg, in 60 to 72 hours (three), 2 8 to 3 0 mg, and in 120 to 144 hours (three), 2 8 to 4 8 mg In the 5-year-old boy with congenital heart disease the comparable dose given over a 72-hour period was 0 675 mg, or 0 048 mg per kilogram of body weight If these individual initial digitalization doses are corrected by subtracting the subsequently established maintenance doses, as suggested by Hejtmancik and Herrmann,[7] the net digitalization dose over 24 hours is from 1 5 to 3 6 mg, with an average of 2.2 mg for the 17 adults, or 2 mg if the patient receiving the highest dose (case 18, table 1) is omitted

The ratio between the subsequent maintenance dose given orally and the initial corrected 24-hour digitalization dose may reflect the daily rate of dissipation or the fraction of therapeutically active glycoside in the body that must be replaced each day In these 18 patients the calculated average rate of elimination was 9 42% per day (range 4 to 18 2%) This rate is considerably slower than that reported by Loffler and others,[16] who calculated an average daily rate of elimination of 14% of the initial dose of acetyldigitoxin in 22 patients digitalized and later maintained on the preparation intravenously This discrepancy may reflect some difference either in the two routes of administration or in the criteria of adequate digitalization, which would affect the respective initial or maintenance doses

Digitalization orally with fractional doses makes it more difficult to assay the rate of absorption or the time required to achieve initial and maximal therapeutic effects However, the digitalization of one patient (case 6, table 1) who developed auricular fibrillation in 12 days after a pneumonectomy and of another patient (case 8, table 1), a 63-year-old hypertensive woman who developed auricular fibrillation 8 days after excision of the right middle lobe for benign atelectasis and fibrosis, provides some interesting data Four hours after giving an initial 1 2-mg dose of acetyldigitoxin there was a reversion to sinus rhythm in the patient in case 6, and his ventricular rate dropped from 200 to 100 per minute His rhythm remained regular, and, after he received an additional 1 mg, his heart rate fell to below 80 per minute within 24 hours Similarly, two hours after receiving orally an initial dose of 0 8 mg of acetyldigitoxin, there was a reversion to sinus rhythm in the patient in case 8 and her ventricular rate fell from 170 to 190 to 100 per minute She received two 0 4-mg doses in the next 18 hours, and her pulse rate fell first to 80 and then, after receiving 0 8 mg more, to 72 per minute by the end of a 48-hour period of digitalization The total dose of 2 4 mg given to this patient may have been excessive, inasmuch as she complained of some anorexia and slight nausea later in the day, however, when glycoside was omitted for 24 hours, she felt perfectly well and had no further difficulty later on a maintenance dosage schedule of 0 1 mg twice daily

Daily Maintenance Dosage—In the 62 previously digitalized patients and in 17 of the 18 initially digitalized, the daily maintenance dose of acetyldigitoxin was established In patients considered previously satisfactorily digitalized on the basis of clinical condition and the absence of signs or symptoms of intoxication, the daily dose of acetyldigitoxin required to maintain this status was determined by trial and error When the previous digitalization was considered either inadequate or excessive, the daily doses of acetyldigitoxin were cautiously increased or decreased until a better clinical response was achieved (as described above) before instituting maintenance therapy As the data in table 2 indicate, the daily maintenance doses of acetyldigitoxin ranged from 0 1 to 0 4 mg in the adult patients Generally, the daily dose was divided, 0 1 mg being given one, two, three, or four times daily, or on alternate days in those patients listed as receiving 0 15 or 0 25 mg The majority of patients were on maintenance therapy of 0 1 mg once or twice daily

Once established, the daily dose usually remained the same over many months However, at times, as with other digitalis preparations, changes in the patient s clinical status made it necessary to make appropriate adjustment in the daily dose Often, the gradual cardiovascular deterioration of chronic congestive failure leads to insidious escape from previous adequate digitalization When this occurred in the present studies, increasing congestive failure was often presaged by rising cardiac rates Therefore, otherwise inexplicable, persistent elevations in apical rates were considered as indications for supplementary doses (0 1 or 0 2 mg) of acetyldigitoxin, one to four times daily, depending upon the urgency of the situation If fluid accumulation occurred despite satisfactory digitalization, mercurial diuretics were given, preceded by ammonium chloride administration and followed by aminophylline injections Once satisfactory redigitalization was achieved or signs of intoxication were elicited, the old or a new, higher maintenance dosage schedule was instituted

TABLE 2 —*Daily Dose of Acetyldigitoxin, Effect on Apical Rate, and Incidence of Intoxication in Eighty Patients*

	Daily Maintenance Dose Mg							Decrease in Apical Rate			Signs of Intoxication		
	0 05	0 1	0 15	0 2	0.25	0.3	0 4	None	<20	>20	None	Gastrointestinal	Electrocardiographic
No of Patients	1	32	4	34	1	5	2	41	13	26	59	11	20

Dose for one patient not determined

After weeks on a constant dosage schedule, occasional patients exhibited signs of digitalis toxicity, such as anorexia, nausea, and arrhythmias, which necessitated reduction of their daily dose (see below) In hospitalized patients with very severe congestive failure, in whom satisfactory cardiac response with any preparation could be obtained only by digitalizing almost to the point of toxicity, each dose was ordered separately after carefully checking cardiac rate and rhythm by taking apical rates or electrocardiograms, as indicated Once satisfactory control was established in such patients, supplemental doses of acetyldigitoxin were usually needed only at weekly or biweekly intervals, unless some acute infection or other complication developed that increased body metabolic demands

Apical rate did not change significantly in 41 patients receiving acetyldigitoxin, chiefly in those previously well digitalized on other compounds However, in the other 39 patients significant decreases in apical rate were observed after adequate digitalization was accomplished (table 2) In 13 cases, this decrease was less than 20 per minute, and, in 26, including most of the 18 acutely digitalized patients, it was greater than 20 per minute It should be noted that these reductions in heart rate were achieved in patients with cardiac diseases varying etiologically from hyperthyroidism to diffuse myocarditis and chronic constrictive pericarditis and in the presence of regular sinus rhythm as well as auricular fibrillation

Signs of digitalis toxicity were observed in 21 patients, in most of whom such intoxication was used as the end point of digitalization or redigitalization In 11 patients gastrointestinal symptoms were noted, generally only anorexia or nausea except in 3 who finally developed vomiting when additional doses were given In six of these patients the gastrointestinal symptoms preceded the more serious evidence of digitalis toxicity (cardiac arrhythmias), which developed when additional doses were given In four, gastrointestinal symptoms and arrhythmias occurred simultaneously

In 20 of the 80 patients, electrocardiographic evidence of intoxication was noted Generally ventricular premature contractions (either occasional multifocal beats, bigeminy, trigeminy, or quadrigeminy) were observed, but there also occurred varying degrees of atrioventricular block (including simple prolonged PR intervals or the Wenckebach phenomenon) and in 2 patients auricular fibrillation, which reverted to sinus rhythm within 12 and 24 hours, respectively, when the patients were given additional organic potassium salt supplements orally Almost uniformly, such signs subsided within 72 hours, and generally within 24 hours, when acetyldigitoxin was withheld and when the patient was placed on therapy with organic potassium salt supplements orally Because of this rapid subsidence of toxic effects, maintenance doses and daily dissipation rates were established in several of these patients by determining repeatedly the minimal doses necessary, first, to reproduce electrocardiographic evidence of drug intoxication and, then, to maintain adequate digitalization without intoxication In these studies reproducible signs, such as the Wenckebach phenomenon or ventricular premature contractions, generally subsided in 12 to 24 hours after the preceding precipitating dose of acetyldigitoxin

In table 3 a comparison is made between the daily dosages of acetyldigitoxin and digoxin or digitoxin required to maintain satisfactory digitalization in this series of patients Inspection of the data reveals that daily doses of 0 1, 0 2, and 0 3 mg of acetyldigitoxin are equivalent to 0 25, 0 5, and 0 75 mg of digoxin respectively In other words, in 33 of the 39 patients maintained on therapy with both of these glycosides, 0 1 mg of acetyldigitoxin was equivalent to 0 25 mg of digoxin In the patients who had previously been receiving digitoxin, the dose of the two glycosides was the same in 9 of 15, whereas 6 previously maintained on 0 1 mg of digitoxin daily required 0 1 mg of acetyldigitoxin twice daily However, because of the small number of patients observed in this study, it is not possible to establish ratios between the doses of digitoxin, digitalis leaf, or gitalin and the equivalent dose of acetyldigitoxin

Comment

Certain characteristics of the purified glycosides, which otherwise have the same effects on the failing heart as the Galenic preparations of digitalis, have led to their increasing clinical use in recent years The chemical purity of the crystalline materials not only permits gravimetric determination of potency but also insures reproducibility and constancy of both absorption and therapeutic effect. Moreover, when oral administration is contraindicated, preparations of most of these products, including those with short latent periods that may also be used for rapid digitalization intravenously, are available for parenteral use.

Therapeutically, the glycosides that have been purified since Nativelle first developed digitoxin [8] differ only with respect to speed of action, duration of therapeutic and/or toxic effects, and presumably ratio of the therapeutic to the toxic dose. For example, it has been well established [9] that digitoxin achieves a maximal effect and is excreted much more slowly than is digoxin, whereas it has been reported [10] that the ratio of the therapeutic dose to the toxic dose for gitalin is only one-third in contrast to approximately two-thirds for the other commonly used glycosides. In an effort to find a glycoside with less persistent toxicity and a wider therapeutic margin than digitoxin, Stoll and Kreis [2] prepared acetyldigitoxin by enzymatic cleavage of a glucose molecule from lanatoside A. Despite its close chemical relationship to digitoxin, animal studies suggested that, although the gastrointestinal absorption and cardiac effects of the two glycosides were equivalent, the excretion or dissipation of toxic effects of acetyldigitoxin occurred much more rapidly.[11]

TABLE 3.—*Comparison Between Daily Doses of Acetyldigitoxin and Previous Maintenance Doses of Digoxin or Digitoxin*

Previous Dose of Digoxin	No. of Patients on Given Mg. Dosage Schedules of Acetyldigitoxin			
	0.1	0.2	0.3	0.4
0.25	18	3		
0.50	2	11		
0.75			4	1
Previous Dose of Digitoxin				
0.1	5	6		
0.20		4		

The present studies confirm the results of the extensive European [1] series and the smaller series of American clinical trials [3] demonstrating that, like digitoxin, acetyldigitoxin given orally is well tolerated and readily absorbed but that it achieves a near maximal therapeutic effect sooner and, in patients digitalized to the point of drug intoxication, is excreted much more rapidly than is digitoxin. However, analysis of the data suggests that doses orally given for both initial digitalization and subsequent maintenance therapy are somewhat lower than those employed abroad. Thus, an optimal therapeutic response without evidence of drug intoxication probably can be achieved and maintained in most patients by giving 1.5 to 2 mg by mouth in divided doses over 24 hours, as other American reports [1c] indicate, followed by later doses of 0.1 mg orally once or twice daily. On such schedules, except in very sick patients whose doses often must be gradually increased until either therapeutic response or drug intoxication is achieved, subjective or objective evidence of overdigitalization is minimal.

Of great significance is the fact that, in patients receiving acetyldigitoxin in contrast to digitoxin, signs of intoxication subside quickly, generally within 24 and almost invariably within 72 hours. This rate of subsidence of induced intoxication is greater than anticipated in view of the daily dissipation rate of approximately 10%, calculated by comparing the daily maintenance dose orally with the effective digitalization dose orally in 17 patients in the present series. The higher 14% dissipation rate in 27 patients who were digitalized and maintained on acetyldigitoxin administered intravenously by Loeffler and others [1c] may reflect the transiently higher blood levels and consequently more rapid excretion of acetyldigitoxin resulting from intravenous rather than oral administration. Furthermore, in the light of the 50 to 60% therapeutic toxic dose ratio reported for acetyldigitoxin,[1c] the relatively greater safety of the oral route may have led us to give initial digitalizing doses somewhat in excess of those required for optimal therapeutic response. With the relatively lower maintenance doses, the excess would be rapidly excreted, leaving in the body an undeterminable but smaller quantity of active glycoside, the correct denominator for calculating dissipation rate.

This relatively rapid disappearance of the objective and more dangerous signs of digitalis intoxication in patients receiving acetyldigitoxin has been abundantly confirmed. It is equivalent in our experience to that observed in patients maintained on therapy with digoxin, a rapidly dissipated glycoside. Lown and Levine [13] have properly emphasized that rapidly eliminated compounds are the cardiac glycosides of choice in patients with advanced heart failure. In such patients, despite their reduced myocardial threshold to the toxic effects of digitalis, increasing doses must often be given until either a therapeutic response or intoxication is achieved, and subsequent maintenance therapy, as in many of the patients in the present series, frequently borders on production of toxic effects. Like digoxin, acetyldigitoxin is well suited for such therapeutic regimens, in which 0.1 mg generally can replace 0.25 mg of digoxin.

A rapid rate of dissipation of the toxic effects of a cardiac glycoside ordinarily implies a rapid escape from the therapeutic effect too, however, it has been our experience that adequate digitalization may be readily maintained with both digoxin and acetyldigitoxin outside the hospital, if the patient is instructed to take the prescribed dose one or more times daily, as indicated, depending on pulse rate and symptomatology. Periodic office or clinic checks on the apical rate and clinical status of a patient with fibrillation serve as further guides to the therapy. It is of interest that, in some patients, generally with sinus rhythm but occasionally with auricular fibrillation, cardiac compensation and normal heart rates at rest may persist for three to four weeks after the oral administration of these more rapidly excreted glycosides is discontinued. Whether this persistent therapeutic response reflects myocardial fixation of some fraction of the digitalis body is not known. Nevertheless, it presents a striking contrast to the rapid disappearance of toxic effects when these same patients are overdigitalized.

Summary and Conclusions

In a series of 80 patients with heart failure of varying degree and etiology, with regular sinus rhythm as well as with auricular fibrillation, acetyldigitoxin (Acylanid) has been found to be a highly satisfactory cardiac glycoside The data suggest that in most patients initial digitalization can be achieved by giving 1 5 to 2 mg in divided doses by mouth over a 24-hour period, following which therapeutic response without evidence of intoxication or escape from digitalization generally may be maintained by doses of 0 1 mg orally once or twice daily, as indicated Since but two-thirds of the dose given orally is absorbed from the gastrointestinal tract, the digitalizing and maintenance doses given intravenously are proportionately lower In patients with severe congestive failure, whose maintenance digitalization often borders on toxic levels, any induced objective and subjective signs of overdigitalization with acetyldigitoxin usually subside within 24 to 72 hours In this respect, as in others, the newer glycoside therapeutically resembles digoxin rather than digitoxin

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CURRENT CONCEPTS OF ACUTE ARTERIAL INJURIES

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Restoration of circulation in patients with acute arterial injuries is the obligation of every surgeon who undertakes the definitive treatment of traumatic wounds The general principles concerned in the treatment of arterial injuries are commonplace, basic techniques are not complicated[1] It is no longer permissible for the surgeon to be prepared only to arrest hemorrhage and to ligate arteries when confronted with vascular injuries Present-day knowledge demands that he carefully evaluate the injury and be aware of the sequelae of arterial ligation The advantages to the patient of fully reestablished blood flow are so great that vascular restoration must be the rule in the treatment of wounds involving major arteries—restoration through direct vessel repair, by vessel homograft, or by relief of occluding extrinsic pressure

The general principles of wound treatment obtain in wounds involving arteries as in other wounds These include preoperative evaluation of extent of injury, proper debridement, prophylaxis against infection, treatment of associated injuries, and indications for wound closure, including primary or delayed wound closure, or closure by skin graft The emergency control of hemorrhage by pack, pressure, or

• *The first aid tourniquet, though life saving, should be removed as soon as it can be replaced by means such as clamps or packs that are less damaging to skin, muscle, nerves, and vessels Ligation can result in impaired function even if no ischemia is evident, it should be done only in the smaller arteries distal to the popliteal in the leg or the brachial in the arm*

Optimum results in the treatment of injured arteries depend on technical refinements The six case histories here given illustrate (1) the danger of hematomas underlying dense fascia, (2) the good results obtained from end to end anastomosis when major arteries have been transected, (3) the successful averting of gangrene by using an arterial homograft to repair a 9 cm gap, (4) the occasional need of repeated operation of recurrent thrombosis, (5) the feasibility of ligating small peripheral arteries, and (6) the successful use of a branching arterial homograft 16 cm in length, with recovery from claudication and ischemic ulceration, 11 years after excision of an arteriovenous fistula in the thigh The immediate restoration of arterial flow by using grafts avoids the delay thought necessary for the development of collateral circulation It reduces the amount of functional impairment and exemplifies restorative as distinguished from ablative surgery

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tourniquet is well understood These methods are important when used properly The first-aid tourniquet should be removed as soon as possible and a pneumatic cuff apparatus applied Deleterious tourniquet effects include direct pressure damage to skin, muscle, nerves and vessels, as well as indirect damage to tissues distally from prolonged circulatory deficit Direct control of bleeding by pack, temporary ligature, or clamp often enables the physician to gain advantages for the patient without incurring tourniquet risks

Hemorrhagic shock is best treated by restoration of blood volume with whole blood transfusions Restoration of blood flow in larger arteries is preferable to ligation, even though the ligation might not be followed by gangrene Significant circulatory deficit may result from ligation, even though no ischemia is evident Ligation should be acceptable in general only in the smaller arteries distal to the popliteal artery in the lower extremity and distal to the brachial artery in the upper extremity Ligation of the axillary, brachial, and superficial femoral arteries is seldom followed by gangrene, but disability follows Extremity coldness, fatigability, and claudication are frequent Interruption of autonomic nerve impulses by blocking drugs, by injection of local anesthetics and by surgical ganglionectomy has proved disappointing These are no substitute for restoration of blood flow through main arterial channels

Localized severe spasm of a major artery at the site of direct injury from a fracture fragment or other contusing force is different Such segmental artery spasm is of local cause, and local treatment is effective If the segmental spasm is not associated with thrombosis, treatment consists of release of mechanical pressure on the artery (e g , reduction of a displaced fracture fragment), application of warm saline solution packs, and topical application of cocaine solution or injection of procaine solution into the vessel adventitia If the spasm is associated with traumatic thrombosis and/or intimal detachment, resection of the damaged segment is indicated, with blood flow reestablishment through an appropriate vessel homograft Thromboendarterectomy is an unreliable method of treatment after trauma, as thrombosis will likely reoccur

Subfascial hematoma is deceiving and dangerous As subfascial tension increases from arterial hemorrhage and associated edema, arterial flow is progressively diminished in both major and collateral arterial channels Tissue necrosis and, finally, gangrene result Prompt relief of compartmental tension may be obtained by wide fasciotomy Regional heparinization is attempted frequently during operation to prevent blood coagulation in the extremity distal to the site of arterial injury The heparin solution is injected into the arterial tree in the direction of flow before beginning vascular repair or vessel homograft This so-called regional heparinization may be largely mythical, but we are still using this technique The small volume of solution must fail to fill and heparinize the peripheral arterial channels completely, and, further, the solution may soon be lost into the general circulation if even small collateral vessels are functioning

Anticoagulants are not used after operation except with special rare indications Major vein ligation in the hope of enhancing tissue oxygenation in the presence of arterial deficit is not beneficial

Technical Considerations

Success in the treatment of vascular injuries depends in a large part upon certain technical refinements If ligation is required as a temporary expedient, it should be carried out close to the injury site to avoid damage that would add to the difficulties of subsequent definitive arterial repair The results of surgery are excellent for acute arterial injuries if repair is accomplished within four to six hours Artery repairs and grafts cannot succeed unless the distal portion of the arterial tree is unobstructed Unless the repair is begun soon after the injury has occurred, blood clot is likely to exist in the vessel lumen on either one or both sides of the wound Such clots must be gently and completely removed Suction and milking techniques usually remove clots and do not cause intimal injury Irrigation within the vessel combined with intermittent suction through a catheter often clears the artery of long string-like clots that previously resisted removal A limited débridement of injured vessel is usually required to provide healthy tissue for repair Frayed and contused vessel margin must be excised Segmental resection of injured artery is occasionally required

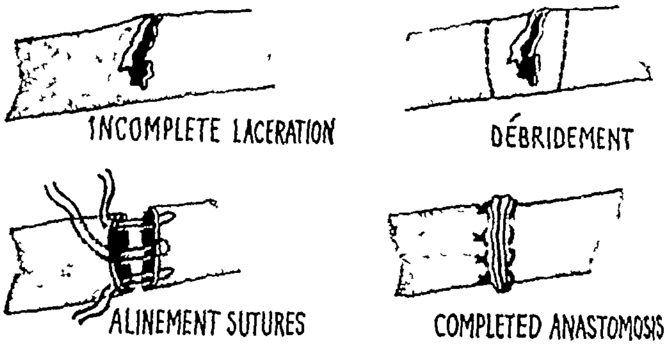

Fig 1 —Treatment of localized artery injury by limited resection and direct end-to-end anastomosis

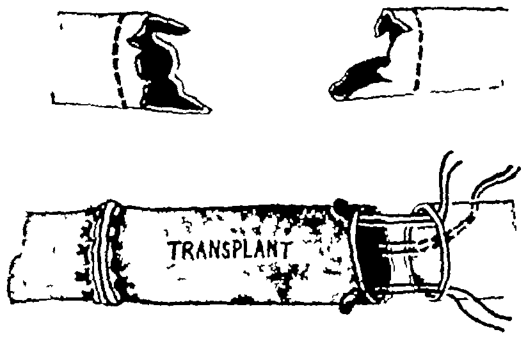

Fig 2 —Treatment of an extensive artery wound by débridement of injured artery ends and restoration of continuity with a transplant

During artery repair, bleeding must be controlled in a manner not damaging to the vessel wall If serrefine clamps are not available, nontraumatizing occlusion may be obtained by means of an encircling rubber band or Penrose drain, which is held snug with a hemostat Every care should be exercised to avoid traumatizing the arterial wall from within or from without The most reliable and appropriate stitch for use in small and medium-sized arteries is the interrupted, intima-everting, flat-mattress suture method described by Jaboulay and Briau in 1896[2] This technique is equally applicable to direct artery anastomosis and vascular hemograft (fig 1 and 2) Intimal eversion and accurate suturing with 0000 and 00000 arterial nonabsorbable surgical suture provide a smooth lumen at the repair site, thus lessening the chance of intraluminal occlusion from blood clot The interrupted suture technique minimizes anastomotic narrowing A continuous suture is likely to result in a purse-string effect The continuous vessel suture, interrupted at three or four sites, without intimal eversion is satisfactory for the aorta, where the lumen is large and the volume flow is great, but it is not appropriate for repair of smaller arteries such as the femoral

Direct end-to-end anastomosis is performed when a limited mobilization of vessel ends can be accomplished without injury to important collateral channels Excessive tension, however, upon the anastomosis line must be avoided Arterial continuity is reestablished by vessel homograft where the graft is required to bridge a sizable gap, or to avoid excessive anastomotic tension, or to prevent injury to large collateral vessels from extensive mobilization of the injured artery Vessel homografts should be of a appropriate caliber, as disproportion produces eddy currents that favor thrombosis[3] Grafts are placed under slight tension, as this duplicates the normal situation and probably minimizes turbulence

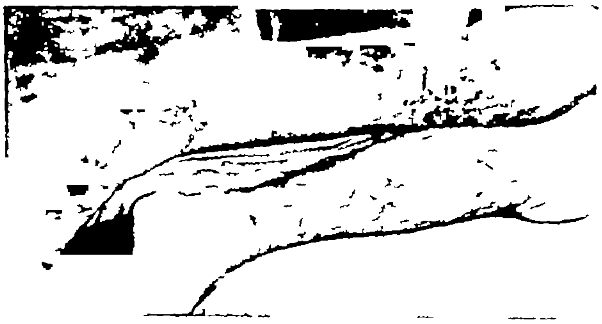

Fig 3 —Ecchymosis swelling and arterial insufficiency following shotgun wound in left popliteal area

When available, arterial homografts preserved by freeze-drying and stored at room temperature in vacuum tubes are used[4] These homografts are well tolerated and lend themselves to easy technical handling When autogenous vein must of necessity serve as the graft, its direction is reversed so that valves do not hinder blood flow Because the vein dilates to about one and one-half to two times its usual caliber when subjected to arterial pressure, a vein smaller than the artery to be bridged must be selected The long saphenous vein is readily accessible and is of a size reasonably appropriate for replacement of segments of popliteal, femoral, brachial, and axillary arteries

The vessel segment repaired or grafted must be surrounded by viable uninfected tissue and must not be exposed to the exterior It is preferable that the wound be closed completely after debridement and vascular repair If the wound cannot or should not be closed, the vessel repair or graft must be covered by healthy tissues, for otherwise secondary hemorrhage and slough of grafted tissue occurs Homografts must be nourished and invaded by reparative tissue from adjacent structures if they are to be successful Usually an artery repair site can be buried conveniently in healthy muscle even though complete wound closure is not possible In appropriate circumstances, a split-thickness skin graft will convert an open traumatic wound with loss of skin into a primary wound closure

Illustrative Clinical Problems

Puncture Wounds of Major Artery with Subfascial Hemorrhage—Artery Repair and Fasciotomy—A 22-year-old man sustained a 410 gauge shotgun wound of the left knee region on Nov 30, 1954 Progressive swelling developed in the extremity The day following the injury, coldness and cyanosis developed and the calf became painful and tender At the time of hospital admission and operation four days after the injury, the left lower extremity was cold, pulseless mottled, cyanosed, and ecchymotic (fig 3) Pellet wounds were evident on the medial aspect of the knee Lumbar sympathetic block did not improve the circulation Through a posterior incision, the popliteal space and the posterior fascial compartment of the leg were exposed widely The calf musculature was hemorrhagic, edematous and initially appeared lifeless The popliteal artery and vein were in continuity Upon relief of local pressure by fascial division and separation of muscles, blood coursed through the artery into its tibial and peroneal divisions and blood spurted from two puncture wounds in the popliteal artery Fine arterial nonabsorbable surgical sutures were used to repair the small artery wounds The exposed calf musculature regained a more normal color An extensive fasciotomy of crural fascia was performed, extending as low as the ankle Postoperatively, the proximal leg tissues showed signs of viability while the distal portion of the leg and foot remained nonviable and became gangrenous. Leg amputation was performed 5 in below the knee on Dec 9 1954 10 days after the injury Free bleeding was observed from the transected larger arteries demonstrating the restoration of blood flow in these channels

This patient lost his extremity from circulatory insufficiency due to the pressure deep to the crural fascia The increased tension within the fascial compartment of the leg caused venous obstruction and finally such compression of arterial flow that the distal and most vulnerable part of the extremity became gangrenous The small distal vessels became occluded by clot There is little doubt that early fasciotomy and repair of popliteal artery puncture wounds would have saved the extremity

Transection of Major Artery—Immediate Repair by Direct End to-End Anastomosis—A 26-year-old man was seen Aug 20 1955 one-half hour after he had been involved in an automobile accident. He had sustained an incised wound of the inner aspect of the right arm and a cerebral concussion A makeshift tourniquet was in place on the upper right arm There was severe hemorrhagic shock Shock was controlled by administration of 2,000 cc of whole blood and 500 cc of plasma expander Two hours after the injury the wound was explored and débrided The cleanly severed brachial artery was repaired by direct end-to-end anastomosis The severed median nerve was repaired with perineural sutures of fine nonabsorbable surgical suture The partially divided biceps muscle was repaired The wound was closed in layers and a plaster splint was applied The patient s postoperative course was satisfactory The arterial circulation was normal Radial pulsations and those in the distal portions of the brachial artery were strong and equal bilaterally, but the median nerve function had not returned when the patient was last seen, one month after operation

This case involved the technical problem of a cleanly divided brachial artery It was probable that ligation of the artery would have been tolerated, as most of the small collateral arteries were uninjured By artery repair a hazard to function was not risked

Extensive Major Artery Laceration and Impending Gangrene—Correction by Arterial Homografting and Fasciotomy—A 20 year-old man sustained a 32 caliber pistol wound of the right lower quadrant of the abdomen on Nov 12, 1955 An hour later at emergency laparotomy in another hospital the intestinal wounds were repaired and bleeding was controlled by ligation of the right external iliac artery, through a separate incision the right common femoral artery was ligated below the inguinal ligament Increasing evidence of inadequate circulation in the right lower extremity developed, manifested by coldness below the knee, discoloration of foot and leg, inability to move the foot, and sensory loss in the leg and foot At the time of hospital admission, Nov 15 1955, three days after injury, gangrene of the right foot and lower leg seemed imminent The patient was unable to move the toes, and ankle and knee movements were limited by pain The extremity was cold and swollen below the knee The calf muscles were tense and painful to pressure Skin sensation was diminished distal to the knee and absent in the foot and ankle The foot and ankle presented a blotchy, bluish discoloration No pulsations were palpable

Operation was performed Nov 15, 1955 A right oblique iliolumbar incision provided retroperitoneal exposure of the injured artery A 3 5-in segment of artery was missing After the ligatures were released, a clot was removed from the proximal end of the artery and bleeding occurred from both open ends The injured artery was excised to healthy arterial tissue Continuity was reestablished by utilizing an appropriately sized freeze-dried, sterile artery homograft, which had been stored in a vacuum tube Full arterial flow through the graft ensued The intact accompanying vein was patent and was left so Because of the clinical diagnosis of ischemic swelling of leg muscles, both the anterior and posterior leg compartments were opened widely by anterior and posterior crural fasciotomy The muscles of these compartments were grayish, swollen, and avascular The skin was closed over the anterior fasciotomy incision, but edema prevented closure of the long posterior skin incision

The patient's postoperative course was excellent There was a return of skin sensation Normal color returned to the leg and foot except for the tips of three toes, which blackened and mummified and were debrided The extremity became warm to touch, and swelling receded The exposed calf muscle assumed a normal color and appearance Circulatory improvement was gradual rather than abrupt Four days after operation strong pulsation was palpable in dorsal pedal and posterior tibial arteries Secondary closure of calf skin was carried out Dec 9, 1955, 24 days postoperatively Motor function in the extremity recovered somewhat, but it was necessary to resect necrotic muscle in the anterior compartment on the 34th day after operation At present the patient has weak dorsiflexion of the foot through peroneal musculature for which he uses a mechanical foot brace

This case is of unusual interest because impending complete gangrene was prevented, near-normal circulation was restored, and functional partial recovery was brought about by crural fasciotomy and artery homograft three days after injury The muscles in the anterior compartment are more vulnerable to vascular injury Collateral circulation prevented thrombosis in most of the smaller distal vessels, otherwise gangrene would have become established in the foot and ankle despite the technical success of the artery grafting procedure The good result may be due in part to fasciotomy, as well as to the late artery repair The anticipated amputation was prevented

Surgical Injury (Repeated Embolectomy) of Major Artery with Thrombosis—Segmental Resection and Arterial Homografting—A 54-year-old man was hospitalized Oct 30, 1955, because of congestive heart failure, syphilitic aortitis and polycythemia Appropriate treatment relieved the heart failure On Nov 8 1955, symptoms and signs of embolism of the right femoral artery developed suddenly At emergency operation an embolus was removed from the bifurcation of the right common femoral artery Circulation was restored to the extremity The source of the embolus was not determined A program of long term anticoagulant therapy was instituted Subsequent successful arterial embolectomies were performed as follows Nov 17 (morning), left common femoral, Nov 17 (afternoon) right common iliac Nov 20, right common femoral and Nov 21 right common femoral

On Nov 21, several hours after the last embolectomy evidence of right femoral artery occlusion led to a fourth exploration of the vessel A distinct embolus was not found, but the artery was clot-filled at the site of previous embolectomies Thrombosis had occurred due to arterial injury from surgery and embolism The vessel was temporarily repaired after clot extraction while an arterial homograft was prepared Circulation in the extremity was restored, but one-half hour later, upon segmental excision of the injured artery, the segment was found rethrombosed A 7 cm segment of common and superficial femoral artery was resected and the defect was bridged with a bifurcation arterial homograft Restoration of circulation followed through both superficial and deep femoral arteries The patient did not develop further evidence of occlusion of peripheral vessels, but he died Dec 2 1955, 11 days after the last operation, from cardiac failure complicated by widespread mesenteric thrombosis Postmortem injection of radiopaque solution into the right external iliac artery established radiographic proof of patency through all anastomoses

Local artery thrombosis resulted from repeated traumas of embolism and embolectomy Artery segments so injured require resection and replacement by healthy tissue Indications for artery repair and grafting include operative injury as well as accidental injury incident to fractures and gunshot wounds

Traumatic Arterial Aneurysm (Pulsating Hematoma) of Minor Artery—Ligation and Excision—A 53-year-old man was struck on the left forearm by flying metal on July 31, 1955 At the time of injury, vigorous bleeding from a puncture wound was controlled by pressure Three days after injury a gradually enlarging mass at the injury site exhibited pulsation On admission Aug 11, 1955, a subcutaneous pulsatile mass that was 2 cm in diameter was found in the forearm overlying the radius distally Radiographs revealed a small metallic object adjacent to the soft tissue mass There was an adequate collateral circulation through the ulnar artery as determined by selective multiple arterial compression The area was explored surgically Aug 12, 1955, and a pulsating false aneurysm was removed by ligating the radial artery proximally and distally The result was satisfactory

False arterial aneurysm (pulsating hematoma) should be treated early If an important artery is involved, it is repaired either by suture, by segmental excision and end-to-end anastomosis, or by segmental excision and graft replacement In an instance of a minor artery (e g , radial or ulnar artery), excision and ligation is usually adequate Early treatment avoids rupture and ischemic damage of overlying or distal tissues

Arteriovenous Aneurysm Treated by Excision with Subsequent Ischemic Symptoms—Defect Bridged by Arterial Homograft—A 31-year-old man sustained a gunshot wound of the left upper thigh in 1943 The resulting arteriovenous fistula was treated by quadruple ligation and excision in 1944 There were no marked ischemic symptoms until 1949 when swelling of the leg and ulceration of the heel occurred Recurrent heel ulceration led to a cross-leg skin-flap transfer in 1952 Except for coolness of the left lower extremity and mild intermittent claudication the patient remained well for three years more after which time an ulcer on the left ankle developed and failed to heal At hospital admission, Aug 9, 1955, examination revealed pigmentation of skin of the lower portion of the left leg and ankle and an ulcer that was 3 cm in diameter above the medial malleolus The left leg and foot were cool to touch as compared with the right, and no pulsation was palpable in arteries distal to the left groin Arteriographs revealed interruption of the left superficial femoral artery just below the deep femoral branch The ulcer on the ankle failed to show healing after five weeks of treatment

Operation was carried out Sept 15, 1955 through a long incision on the thigh The ends of the superficial femoral artery were located and were found to be patent The gap in the artery was bridged with an arterial homograft, which had been preserved by freeze-drying The graft measured 16 cm in length Immediate vigorous blood flow was observed to traverse the transplant Postoperatively arterial circulation in the left lower extremity was normal Pulsation was evident in dorsal pedal and posterior tibial arteries The ulcer healed promptly claudication disappeared, and the extremity became warm

This case demonstrates the disadvantage of ligation of major arteries The arterial ligation was well tolerated initially, but the extremity was not normal subjectively Coldness and mild claudication were annoying Symptoms of arterial insufficiency increased and caused the patient to seek relief It was fortunate that blood flow could be reestablished through the main arterial channel by a homograft 11 years after the artery ligation and excision Arteriovenous fistula should be treated promptly by restorative rather than ablative methods Immediate restoration of arterial flow avoids the delay thought necessary for the development of collateral circulation and avoids concomitant cardiac damage and damage to veins in the injured extremity

Summary

Restoration of blood flow may be obtained in a variety of common arterial wounds by end-to-end anastomosis, graft interposition, or relief of extrinsic pressure The advantages of a fully reestablished arterial flow are so great that vascular restoration should be the rule in the treatment of wounds involving major arteries Success in treatment of vascular injuries depends on proper consideration of technical refinements

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POSTMATURITY AND THE PLACENTAL DYSFUNCTION SYNDROME

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• Postmaturity, taken as meaning a gestational age of 294 days or more, occurred 247 times in a series of 2,877 deliveries Gestational age exceeded 299 days in 132 of these babies

The postmature group did not differ significantly, as to average weight and body length, from a group of 252 babies born after the 259th and before the 295th day The postmature group did, however, include 11 infants with one or more clinical findings characteristic of a placental dysfunction syndrome dry, scaling, parchment-like skin staining of the skin and vernix caseosa, and poor tissue turgor, subcutaneous tissue wasting, or other evidence of recent weight loss Four cases of this are described in some detail In the full term group, on the other hand, there was only one infant with any findings consistent with this picture

Perinatal mortalities in these two groups did not differ significantly The evidence indicated that postmature babies at birth must weigh, on the average, somewhat less than the maximum they attain before birth and that their intrauterine growth is limited by the functional capacities of the placenta

The significance of postmaturity has long been a matter of controversy Discussions are centered on what constitutes postmaturity, whether there is a postmaturity syndrome, and whether postmaturity is clinically significant in fetal and neonatal mortality Our study was undertaken in an attempt to answer these questions The concept of postmaturity as a well-defined entity has not been universally accepted Various criteria have been suggested for determining whether an infant is postmature The most commonly used one is the gestational age as calculated from the first day of the last menstrual period of the mother according to the rule of Naegele Gestational periods exceeding the average of 280 days by 7, 10, 14 15, and 20 days have been regarded by various authors as indicating postmaturity[1] The latter probably is the best indication, since this longer period may compensate for a late date of conception and for irregular and long menstrual periods Other authors demand more complicated criteria for diagnosis of postmaturity such as excessive weight and length[2] For example, the Chicago Board of Health designates a postmature infant as one that weighs 4,250 gm (9.5 lb) or more at birth[3]

History of Sy

As early as 1902 Ballant,
anatomic indications of

From the Sarah Morris Hospital for Children Michael Reese Hospital.

the skin and its appendages, such as absence of lanugo and vernix caseosa, the presence of desquamation, and the absence of the normal red color of the skin In the group studied by Taylor and others[5] of 37 babies whose skin, vernix caseosa, nails, and umbilical cord were stained yellow, 30% had gestation periods of 300 days or more Ley[6] has noticed some relationship between dry, scaling skin and postmaturity Clifford[1] believes that there is clinically a postmature syndrome and in 1954 made such a diagnosis in 37 newborn infants He divided the syndrome into three stages In the first stage he describes long, thin infants with dry, cracking, parchment-like skin, the second stage is more severe, with green staining of the skin and umbilical cord, in the third stage the staining is yellow instead of green Many of the mothers of these babies did not have gestation periods over 300 days, but all periods were over 280 days

It has been generally supposed that with prolongation of pregnancy there is an increase in fetal mortality In 1941 Clayton[7] was among the first to confirm the impression that mortality is higher among postmature infants Subsequently, other investigators[8] supported Clayton In Clifford's[1] group of postmature infants 90% of the mortality occurred in infants born of women who had one, and only one, delivery in a 10-year period In this group postmaturity ranked second only to prematurity as a cause of fetal and neonatal mortality It should be noted that in Clifford's series of postmature infants born to multiparas there was no significant increase in mortality

Patient Material and Methods of Study

Infants with gestational ages of 294 days and over were classified as postmature Since the gestational ages as recorded on the neonatal charts are often only approximate, the maternal charts were studied to determine the correct gestational ages Women who had irregular menstrual cycles were excluded Maternal charts from Jan 1 through Dec 31, 1954, numbering 2,877, were reviewed After the selection of maternal charts, the corresponding neonatal charts were then appraised and the following information obtained race, sex, weight, length, physical appearance of the baby as described by the examining physician and nurse, morbidity, mortality, and postmortem findings Two hundred fifty-two infants born during the same period were used as controls Their neonatal charts were selected by random sampling Infants with gestational ages below 259 days (premature infants) or above 294 days were excluded and replaced by selecting the next admission number The approximate gestational ages on the neonatal charts were checked against the definitive ages in the maternal charts

Results

Of 2,877 infants delivered there were 247 with gestational ages of 294 days or over, an incidence of 8 59% Of these there were 132 babies with gestational ages of 300 days or over, an incidence of 4 59% The average length of the 247 infants was 52 39 cm (20.5 in), with a range of from 45 to 58 cm (18 to 23 in) The average weight was 3,470 gm (7 5 lb), with a range of from 1,975 to 5,480 gm (4 25 to 12 lb) The average length of the control group was 52 42 cm (20 5 in), with a range of from 45 to 58 cm (18 to 21 in) Their average weight was 3,450 gm (7 5 lb), with a range of from 1,995 to 4,670 gm (4 5 to 10 25 lb) The distribution of the heights and weights of both groups is presented in figures 1 and 2 The two groups were virtually identical This implies that the control group is satisfactory with respect to these two variables Approximately one-quarter of the postmature and control populations were Negro The sexes were almost equally divided in both groups

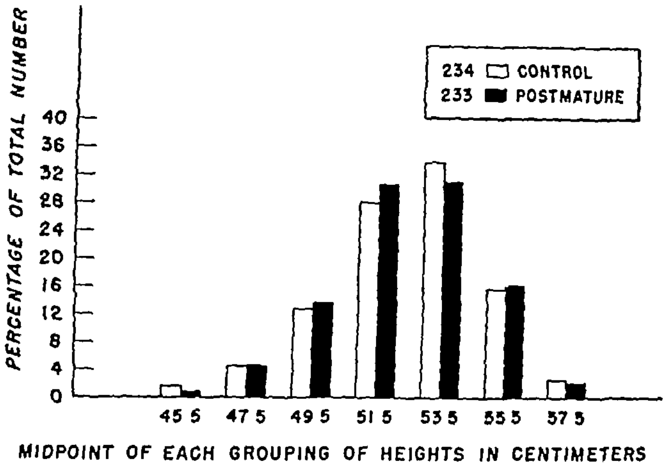

Fig 1 —Distribution of heights of control and postmature infants

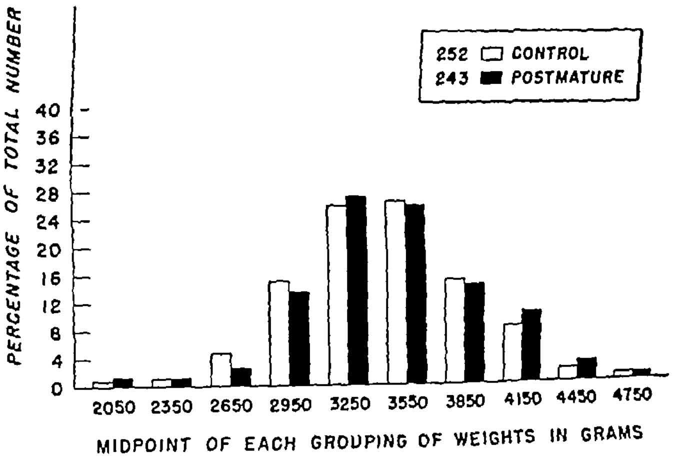

Fig 2 —Distribution of weights of control and postmature infants

Of the 247 postmature infants there were 11 (see table) who presented clinical findings consistent with the syndrome described by Clifford None of these infants had jaundice due to hemolytic disease or other specific causes In all but two, a gestational age of 40 weeks or less was recorded on the neonatal chart, however, the gestational ages on the corresponding maternal charts indicated 294 days or over, so that all of these babies were postmature Five of the 11 were given a diagnosis of possible postmaturity at the time of birth According to the descriptions recorded on the infants' charts, the remaining six presented good evidence of the postmature syndrome Since this is a retrospective study and there was no stress placed upon the examining physicians as to the significance of the postmaturity syndrome, the incidence of this syndrome in our series may tend to be low Four of the 11 case histories are presented below

Report of Cases

CASE 1 —A Negro female baby had a gestational age of 307 days, however, 40 weeks was listed as the gestational age on the neonatal chart. She was 52 cm (20 5 in) in length and weighed 3 440 gm (7 5 lb) The infant was born covered with meconium and there was meconium present in the amniotic fluid She was in respiratory distress at birth A tracheal catheter was used and she improved On arrival at the nursery she was limp and cyanotic, and had slow, gasping respirations The skin was very dry, cracked, and parchment-like, with poor turgor The muscle tone was very poor Breath sounds came through poorly over the right anterior and left posterior sides of the chest. The heart rate was 120 per minute An extra digit was noted on the left hand The impression of the examiner at that time was of cerebral anoxia and atelectasis The baby died 10 hours after birth Postmortem examination revealed a good number of lanugo hairs squamous cells, and eosinophilic fibrillar material in the alveoli. Many of the alveoli were collapsed There was desquamation of the epithelial lining of many of the bronchi.

Data in Eleven Cases of Placental Dysfunction Syndrome

Case No	Race	Sex	Age of Mother	Parity Gravida	Parity Para	Gestational Age of Infant Days	Birth Weight Gm	Length Cm
1	N	F	27	5	3	307	3 440*	52
2	W	F	25	1		295	3,360	52
3	W	M	32	4	1	306	3 830	57
4	N	F	43	19	11	295	1,975	47
5	W	M	32	2		308	3,390	52
6	W	F	31	1		303	2 950	48
7	W	M	36	8	3	295	3 410	55
8	W	F	27	3	1	304	4 180	53
9	W	F	26	1		300	3,920	56
10	W	F	26	1		300	3,100	53
11	W	F	33	4	2	297	3 200	53
	Average		30 7			300 9	3,341	52 5

Patient died

CASE 2 —A white female baby had a gestational age of 295 days Thirty seven weeks was listed as the gestational age on the neonatal chart She was 52 cm (20 5 in) in length and weighed 3 360 gm (7 5 lb) The pertinent physical findings as listed by the examiner are as follows 1 The infant s skin is cracked and dry 2 The muscle tissue is wasted 3 She has an old looking face Despite the findings the infant survived

CASE 3 —A white male infant had a gestational age of 306 days Forty weeks was listed as the gestational age on the neonatal chart He was 57 cm (22 75 in) in length and weighed 3 830 gm (8 5 lb) A resident physician was called to see the child because of respiratory difficulty The skin and vernix caseosa were stained yellow, and the cord was black The infant recovered

CASE 4 —A Negro female infant had a gestational age of 295 days Forty two weeks was listed as the gestational age on the neonatal chart The infant was 47 cm (18 75 in) long and weighed 1 975 gm (4 25 lb) The skin was dry and peeling She was cyanotic at birth had rapid respirations and was hypotonic Generalized rales were heard in both lungs A tracheal catheter alpha-lobeline and a Freeman resuscitator were used. The baby improved and was discharged

All 11 patients presented more than one of the clinical findings as described by Clifford, namely, dry, scaling, parchment-like skin, staining of the skin and vernix caseosa, and evidence of recent weight loss Six of the 11 patients had respiratory difficulties Of the 252 controls, there was only one infant who presented findings consistent with the syndrome This infant had a gestational age of 280 days, length of 52 cm (20 5 in), and weight of 3,520 gm (7 75 lb) There is less than a 1% probability that the difference in the relative frequency of the syndrome in these two groups was due to chance alone Among 11 babies with the syndrome, there was one neonatal death (case 1) Among the other 236 babies, there were 3 stillbirths and one neonatal death, in which autopsy revealed cerebral edema, congenital atelectasis, focal emphysema, and absence of the right leaf of the diaphragm This makes a total perinatal mortality of five, or 2 02%, which is not high for infants of all gestational ages[9] There were 132 babies with gestational ages of 300 days and over Four of the five dead infants had gestational ages of over 300 days The perinatal mortality rate in this group was 3 03% The ages of the mothers of the five dead babies ranged from 26 to 37 years Four of the five were multiparous, the other was a gravida 3, para 0

There were no deaths in the control group This is not statistically significant, since only neonatal charts were used initially in selecting a control group and stillborn children do not have neonatal charts Three of the five postmature deaths were due to stillbirth One of the two neonatal deaths occurred within several minutes after birth, and no neonatal chart was completed The other was accounted for on the postmature neonatal chart Postmortem findings revealed congenital atelectasis in two stillbirths and in one of the neonatal deaths In the latter there was cerebral edema and absence of the right leaf of the diaphragm Cerebral edema was also found in one of the stillborn children One stillborn child had autolysis of the organs The infant in case 1 had evidence of hyaline membrane disease with small areas of atelectasis Of the total 2,877 patients, 2 were anencephalic One of the anencephalic infants had a gestational age of 292 days, the other 267 days

Comment

In our series the incidence of infants with gestational ages of 294 days or over was 8 59% and of those with gestational ages of 300 days and over 4 59%, this falls into the range of other investigators It is unlikely that this incidence will change in the near future, since most obstetricians neither recognize nor accept the concept of postmaturity Holmes[10] says that postmaturity is a "figment of the imagination" Postmaturity is minimized in standard obstetric textbooks,[11] and because of this most obstetricians in this country are not inclined to induce delivery, let alone perform cesarean section, in women with prolonged pregnancies Obviously, these are the main procedures that will reduce the incidence of postmaturity

The weights and lengths of our 247 postmature infants were approximately the same as those found in infants of average gestational age. In Solth's[12] series of postmature infants there was no significant increase in length or weight. Solth stated that the growth curve of the fetus remains stationary after 300 days and that, after a child has achieved a certain state of development, postmaturity can no longer increase its weight or length. Experiments in both animals and humans suggest that, after term is reached, the placenta is no longer able to provide adequate nutrition to the fetus and that, if pregnancy is prolonged, the fetus may even be forced to live off of its own tissues.[13] Kamperman[13A] states that if a baby is postmature 20 days or more it begins to lose weight.

There is a diminished amount of vernix caseosa in postmature infants, and, if this lack is present in utero, the loss of this protective layer leads to maceration of the fetal skin with resultant drying and excessive peeling after the infant is born. The discoloration of the skin is caused by passage of meconium in utero and, most likely, is the result of fetal anoxia, which causes relaxation of the anal sphincter.[1]

Fetal anoxia as evidenced by fetal distress is more common in postmature infants than in full-term infants. As further proof of fetal anoxia in postmaturity, Walker[14] has shown that there is a significant decrease in the oxygen content in the umbilical vein by the 43rd week of pregnancy. At the 43rd week the fetus is just able to receive enough oxygen from the blood for its needs in a resting state and returns little or no oxygen to the placenta. Any stress or strain on the fetus, such as increased activity or infection of the mother, may lead to insufficient oxygen saturation of the blood supplying the fetal brain; this may be a principal factor in producing symptoms such as passage of meconium or postnatal dyspnea or in ultimately producing death.

That inadequate placental function is responsible for the deficient supply of oxygen to the postmature infant is highly probable. Flexner and associates[13a] have shown that human placental permeability declines after reaching its peak at 36 weeks. Furthermore, Barcroft and Young[13b] have found that, when pregnancies in rabbits are prolonged several days past term, the placenta rapidly becomes unable to transmit enough oxygen to support the cerebral circulation of the fetus and that often the fetus dies. Our study lends support to the concept of placental dysfunction. That inadequate placental function may be responsible for the syndrome is borne out not only by the physical appearance of our 11 babies but also by the fact that 6 of the 11 had clinical evidence of anoxia.

Five of the 11 infants had evidence of poor tissue turgor or subcutaneous tissue wasting. This could very well mean that at one time the fetuses weighed more than they did at birth; it also probably explains the reason why an infant in our study was premature by birth weight and postmature by gestational age (case 4). Of the 247 infants who were postmature according to gestational age, only 11 had evidence of the syndrome. This is important, because it demonstrates that most postmature babies as defined by gestational age do not have a characteristic syndrome. The syndrome has been seen in infants born prematurely and at the expected date of delivery.[15] Therefore "placental dysfunction syndrome," as suggested by Clifford, is probably a better term than "postmaturity syndrome," since it may include infants of all gestational ages who present this clinical syndrome. As a result of our studies it is evident that the placental dysfunction syndrome occurs more frequently in postmature infants than in those of average gestational age.

Hyaline membrane disease is said to be more common in postmature infants than in newborn infants of average gestational age.[16] Only one of the two postmature children who died had lungs that showed histological findings suggestive of hyaline membrane disease (case 1). The most frequent pathological findings in postmature infants are confined to the lungs. These include aspiration of amniotic fluid and meconium, squamous cells and amorphous debris in the alveoli, and areas of atelectasis.[1] Congenital anomalies of the brain and spinal cord have been said to occur more frequently in postmature babies. The one most commonly associated with prolonged pregnancy is that of anencephalia.[17] Whether the delay in the onset of labor may be due to the lack of the normal stimulant of a presenting part in contact with the lower uterine segment is a moot question. The low incidence (2 of 2,877 deliveries) of anencephalia in our study makes it difficult for us to correlate the anomaly with postmaturity.

The mortality in our series was not significantly higher than in infants of average gestational age. This is not in agreement with the studies of others.[18] In our selected population of births following prolonged gestation all of the five perinatal deaths occurred in babies of mothers 26 years of age and over. Of the 247 mothers of postmature infants, 141 were from 26 to 33 years of age, whereas 106 ranged from 17 to 25 years of age. This is consistent with Von Rutte's[19] statement that postmaturity produces the greatest risks in babies of elderly mothers.

Summary and Conclusions

The incidence of postmaturity in our study, an overall percentage of 8.59 in infants 294 days and over and 4.59 in infants 300 days and over, is about the same as that found by other investigators and probably will not change significantly in the near future. Postmaturity does not signify a large baby. There is a definite placental dysfunction syndrome that occurs more often in postmature infants than in those of average gestational age. Because the syndrome is not confined exclusively to postmature infants, the term postmaturity syndrome should be discarded. Perinatal mortality does not appear to be significantly higher in postmature babies than in full-term babies.

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ETIOLOGY AND MECHANISM OF HARRISON'S GROOVES

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• *The horizontal grooves (Harrison's) consisting of the drepressions of the sixth and seventh costal cartilages are always at the site of the attachment of the anterior portion of the diaphragm They are ascribed either to rickets or to increased negative pressure due to chronic respiratory difficulty in infancy As a result of studies of the action of the diaphragm and its relation to the development of the normal thorax as well as to the development of the other anterior chest wall deformities funnel chest and pigeon breast, evidence is given to support the theory that all three deformities are produced by abnormal contractions of the diaphragm during infancy Normal (balanced) diaphragmatic contractions produce no inspiratory retraction deformities of the anterior chest wall in spite of the fact that the anterior portion of the diaphragm is the smallest and weakest portion Unbalanced diaphragmatic contractions will produce an inspiratory retraction of some portion of the chondrosternal area if the anterior portion of the diaphragm is congenitally weaker or deficient or if abnormally strong diaphragmatic contractions are induced by chronic dyspneic conditions when the anterior chest wall is still soft and yielding A severe unilateral Harrison's groove was corrected surgically by freeing the six and seventh costal cartilages from their diaphragmatic attachment and suturing them in their new relaxed positions*

Harrison's grooves were first described approximately 120 years ago, but their etiology and mechanism have remained controversial and unsettled An editorial [1] in the *British Medical Journal* in giving strong support to an article on Harrison's grooves by Naish and Wallis [2] stated, Much confusion regarding this point exists to the present day and they are certainly not produced at the attachment of the diaphragm to the ribs as many textbooks continue to assert" Naish and Wallis take issue particularly with Holt and McIntosh,[3] Nelson,[4] and Paterson and Moncrieff,[5] who state that Harrison's grooves are produced by an inward pull of the diaphragm at its costal attachments American authors [6] and Collis and Kawerau [7] treat the condition as a manifestation of rickets, whereas English authors [8] believe they are produced by an increase in the negative intrapleural pressure Furthermore, there is no agreement among the English authors as to why Harrison's grooves are produced in their particular location The *British Medical Journal* editorial stated also, "The exact mechanism of the development of these grooves remains in some doubt, though the presumption is that it is associated with conditions producing increased intrathoracic traction" I will present a theory that may satisfactorily explain the "exact mechanism" of the development of Harrison's grooves

For a proper definition of Harrison's grooves one must distinguish between those in infants and those in children and adults In infants, they are horizontal mobile concavities created by and synchronous with the retraction of the diaphragmatic attachment at the sixth costal cartilage during normal inspiration Harrison's grooves are sometimes present at birth, although they are frequently overlooked at that time As one watches the quiet breathing of an infant with Harrison's grooves and observes the creation of these horizontal concavities during inspiration and places the tips of his fingers in the depth of the concavity along the sixth costal cartilage, one cannot escape the conclusion that the diaphragm is the mechanical factor that produces Harrison's grooves This conclusion was proved to my satisfaction by paralyzing the hemidiaphragm after the injection of 1% procaine hydrochloride into the phrenic nerve in an infant's neck and observing the cessation of this inspiratory retraction However, if one looks at the fixed Harrison's grooves in a child, one may speculate on the possible factors that produced them In children, as the thorax elongates, flattens, and becomes more firm, the grooves become immobile during respiration and appear much lower, but the deepest part of the concavity remains over the retracted sixth costal cartilage There is normally a slight horizontal concavity in this part of the chest in normal children and adults Naish and Wallis [2]

From Newark Beth Israel Hospital.

found in a group of 500 normal school children that 45% had detectable grooves and that 7% of this group had grooves with depths of 3/16 in or more at the deepest point Harrison's grooves vary in depth, are usually bilateral but may be unilateral, and may be seen in combination with funnel chest and pigeon breast The anterior flare of the lower ribs due to conditions resulting from abdominal distention is not considered typical Harrison's grooves

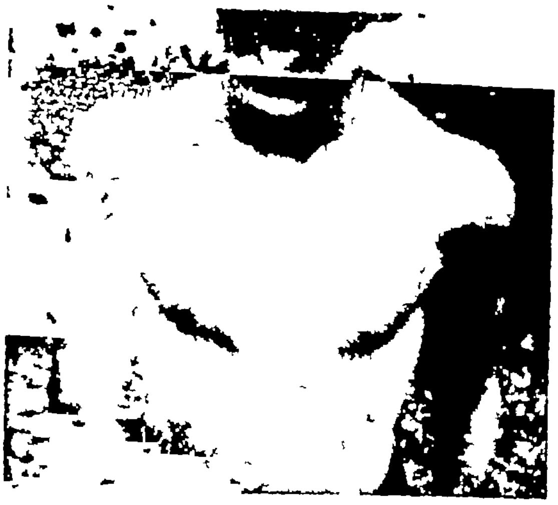

Fig 1 —Seven year-old boy with well-developed Harrison's grooves which were noted at birth The child has been free of rickets Note that the grooves are deepest at the sixth costal cartilages and the attachment of the anterior segment of the diaphragm

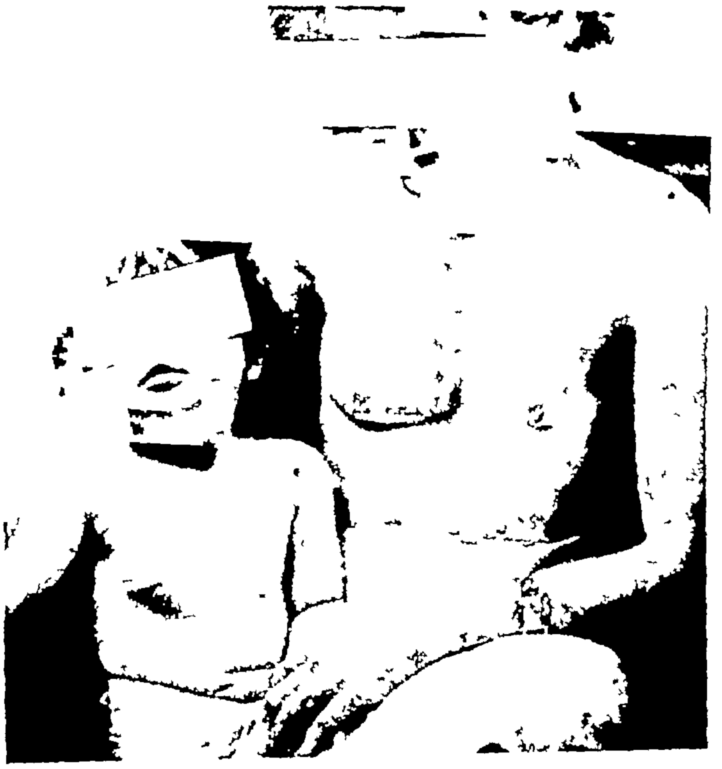

Fig 2 —Normal 2-year-old infant with typical Harrison's grooves which still show some inspiratory retraction at the attachments of the anterior muscular segments of the diaphragm to the sixth costal cartilage Mother has a congenital funnel chest with congenital absence of left breast Child had no evidence of rickets

Rickets undoubtedly influences the bone and cartilage development of the chondro-costal-sternal area and as a result will produce and aggravate abnormalities of the anterior chest E A Park[9] stated, "Thirty years ago the Harriet Lane Pavilion at Johns Hopkins Hospital was literally filled with children who had rickets, together with Harrison's grooves and other chest and bone deformities, whereas today these rachitic deformities have almost disappeared, yet Harrison's grooves are still quite common and very often occur in otherwise perfectly normal children" Inasmuch as these observations were made on apparently nonrachitic infants and children rickets as a primary factor will not be discussed herein although I agree with the English writers who state that Harrison's groove is valueless as a sign of early rickets

Naish and Wallis[2] after a study of several groups of school children between the ages of 5 and 12 years, came to the conclusion that the most important factor in the production of Harrison's grooves is "deficient expansion of the lungs" Although they found an incidence of 7% of distinct Harrison's grooves in 500 normal school children they provided no reason for this occurrence It appears that they based their conclusion on the fact that Harrison's grooves were more frequent in children who had had rickets chronic bronchial asthma severe congenital heart lesions, or repeated attacks of pneumonia The report offered no apparent explanation as to why the majority of the children with these conditions had normal chests It would have been extremely important in this study to know when the Harrison's grooves had been first noticed in these children It is unfortunate that these investigators did not study a group of children from birth and observe those with Harrison's grooves as they developed into childhood

The currently accepted etiological factors are questioned because of the following facts Today, the majority of children with Harrison's grooves are normal healthy children whose medical histories furnish no clue as to the etiology Moreover, the majority of normal children who have had conditions and diseases that are presumed to be responsible for causing Harrison's grooves have perfectly normal chests Furthermore, if two large separate groups, one of infants and the other of children are examined for Harrison's grooves, the incidence will be approximately the same, since the grooves are most often first noted during infancy The medical histories of the children with Harrison's grooves will disclose a certain percentage of the group to have had rickets and conditions with chronic dyspnea that will be regarded as the cause Practically all of the medical histories of the infants with Harrison's grooves will be negative for dyspneic conditions because the infants will not have lived long enough to develop such conditions Therefore, these illnesses and conditions are very often coincidental to the development of the grooves but contributory to their severity Thus, we must seek an etiology and mechanism that will apply equally to both infants and children There is one condition that will produce an inspiratory retraction of the sixth costal cartilage, which is the most yielding part of the anterior chest wall, namely, an unbalanced contraction of the diaphragm, which may be produced by severe dyspnea or deficiency of the anterior segment of the diaphragm I will discuss, first, the mechanical forces that produce the complex but normal balanced contractions of the diaphragm and, second, the etiology and mechanism that produce the unbalanced diaphragmatic contractions that create Harrison's grooves

It has been interesting to note the change concerning the etiology for funnel chest from the formerly current beliefs to the recent suggestions[9a] of a "hypertrophied retrosternal ligament" and a "short central tendon of the diaphragm" as the cause Of these suggestions I question the existence of the former and the role of the latter In more than 50 operations for the relief of pectus excavatum, I have never been satisfied with what has been described as a "hypertrophied retrosternal ligament" In addition, both structures being fibrous are consequently passive and therefore incapable by themselves of moving or affecting the anterior chest wall In previous reports,[10] I have suggested as the cause for the funnel chest unbalanced diaphragmatic contractions resulting from a congenital weakness or deficiency of the anterior segment of the diaphragm This principle also applies to Harrison s grooves

Diaphragm

The key to the understanding of the formation of the congenital anterior chest wall deformities is an appreciation of the forces involved in the complex normal contraction of the diaphragm and the changes in those forces that produce an abnormal contraction The diaphragm is a dome-shaped musculotendinous structure formed by a fusion of four embryonic segments The muscular portion of the normally developed diaphragm consists of radiating muscle fibers whose origin is along the edge of the thoracic outlet These terminate in long tendinous fibers that are inserted, bound and fused together into the trefoil fibrous membrane Each hemidiaphragm consists of three unequal segments The anterior, the smallest and weakest, is almost joined as one segment with that of the other hemidiaphragm and arises at the gladiolus-xiphoid junction and sixth costal cartilages The lateral segments are longer and stronger and arise along the lower margins of the 7th to the 11th ribs The posterior segments, united as one, are the longest and strongest and arise along the 12th ribs and are joined together by the crura from the second and third lumbar vertebrae In the normal infant whose thorax is practically inert, the domes of the diaphragm are comparatively flat and occupy a relatively high position and the costophrenic sinuses are shallow laterally and posteriorly and absent anteriorly[11] Since there is little slack in the diaphragm anteriorly during expiration, any strong diaphragmatic contraction will make itself felt at that point first In the longer and flatter thorax of children, the domes of the diaphragm are lengthened and rounded and the costophrenic sinuses are deeper

During inspiration, the circumferential musculature of the diaphragm contracts radially from a central hub and the central trefoil tendinous portion toward its origin at the periphery of the thoracic outlet As the radiating muscle fibers shorten and straighten, the costophrenic sinuses widen and each hemidiaphragm is drawn downward and taut Each muscle bundle exerts a force or pull that is counterbalanced by an equal force or pull exerted by a muscle bundle that is radially opposite it across the central tendinous portion (fig 3) This is contrary to current belief and to the descriptions in anatomy and physiology books, which state that the diaphragm as a whole descends in a slow piston-like motion The central tendinous portion of the diaphragm that is fused with the fibrous pericardium is comparatively fixed and is held suspended from the thoracic inlet (Sibson's fascia) by the fibrous pericardium, which extends up and fuses with the deep fascia of the neck This point is further fixed by the pulmonary ligaments and indirectly by structures at the roots of the lungs, the phrenic nerves, the mediastinal pleurae, and the great vessels extending up into the neck and arms The relative immobility of this central point in the diaphragm becomes apparent when the action of the diaphragm is observed under the fluoroscope in patients with pneumoperitoneum Normally, this is obscured by fusion of the cardiac and liver shadows and the motion of this portion of the diaphragm has been assumed

During the first year of life the diaphragm need descend only a fraction of a centimeter in order to draw into the infant s lungs the average amount of tidal air required during normal inspiration (This is roughly determined by taking the average circumference of the chest, which according to Kornfeld[12] is 31 cm at birth and 46 cm at the age of one year, and obtaining the area of the diaphragm The total area of the diaphragm is divided into the average amount of tidal air, which is 27 cc at birth and 48 cc at one year[13]) The mechanism of the descent of the normal diaphragm may be graphically demonstrated if we look at one plane of the thorax as seen in the lateral view, although it applies to all planes along the entire circumference (fig 4) In this way we see that the force Z, by which the diaphragm descends, is the resultant of two unparallel forces,[14] namely, X, the force of the ventral pull of the anterior segment, and Y, the force of the dorsal pull of the dorsal segment Force Z, the resultant force of forces X and Y, by which the diaphragm descends, overcomes and exceeds the sum of the opposing positive intra-abdominal pressure and

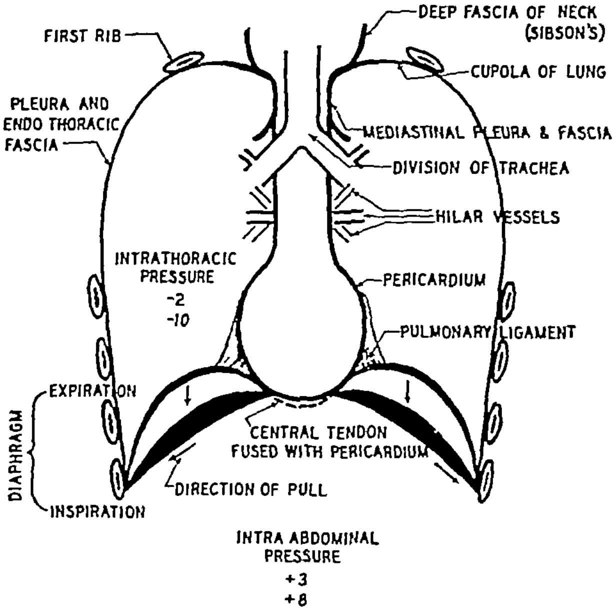

Fig 3 —Schematic demonstration of how central portion of the membranous diaphragm that is fused with the inferior surface of the pericardium and the inferior pulmonary ligaments is relatively fixed and does not descend in a piston like action

the upward negative intrapleural pressure Z is therefore a force that must overcome a resistance equivalent to 18 cm H_2O pressure at the end of normal inspiration (since the intra-abdominal pressure is +3 and +8 and the intrapleural pressure is −2 and −10) Force Z is balanced and divided between the forces X and Y Thus, during the normal inspiration of the infant, each muscular segment is capable of meeting the normal demands of inspiration by a balanced diaphragmatic contraction

In the presence of dyspnea or respiratory obstructive conditions, the diaphragm is forced into stronger contractions to the limit of each muscular segment's capability If, however, greater and greater demands are made on the diaphragm for stronger and stronger contractions the weak anterior segment will reach the limits of its power first Beyond this point it will be overpowered by the stronger lateral and posterior segments, as in a tug of war, and will be pulled back during abnormally strong diaphragmatic contractions on deep inspiration Thus, an unbalanced contraction of the diaphragm occurs in which the anterior segment with its anterior attachment is pulled back and an inspiratory retraction of the sixth costal cartilages, or Harrison's groove, occurs This can be illustrated if the mouth and nose of a normal infant are momentarily closed to block the ingress of air It is frequently seen during the early inspiratory efforts of the infant when its tracheobronchial tree is still filled with secretions and the diaphragmatic contractions are violent, so that deep chondrosternal retractions occur These disappear as soon as the infant's tracheobronchial tree is cleared and there is no further obstruction in the inflow of air into the lungs These retractions are commonly seen for short periods in premature infants, who have greater difficulty with respiration and cannot easily clear the bronchial secretions A striking example illustrating this phenomenon is described by Potter[15] in a case in which the newborn infant breathed normally for the first two hours but gradually became progressively dyspneic, so that with each inspiration a progressively deeper funnel chest was produced until asphyxia took place (an infant with resorption atelectasis)

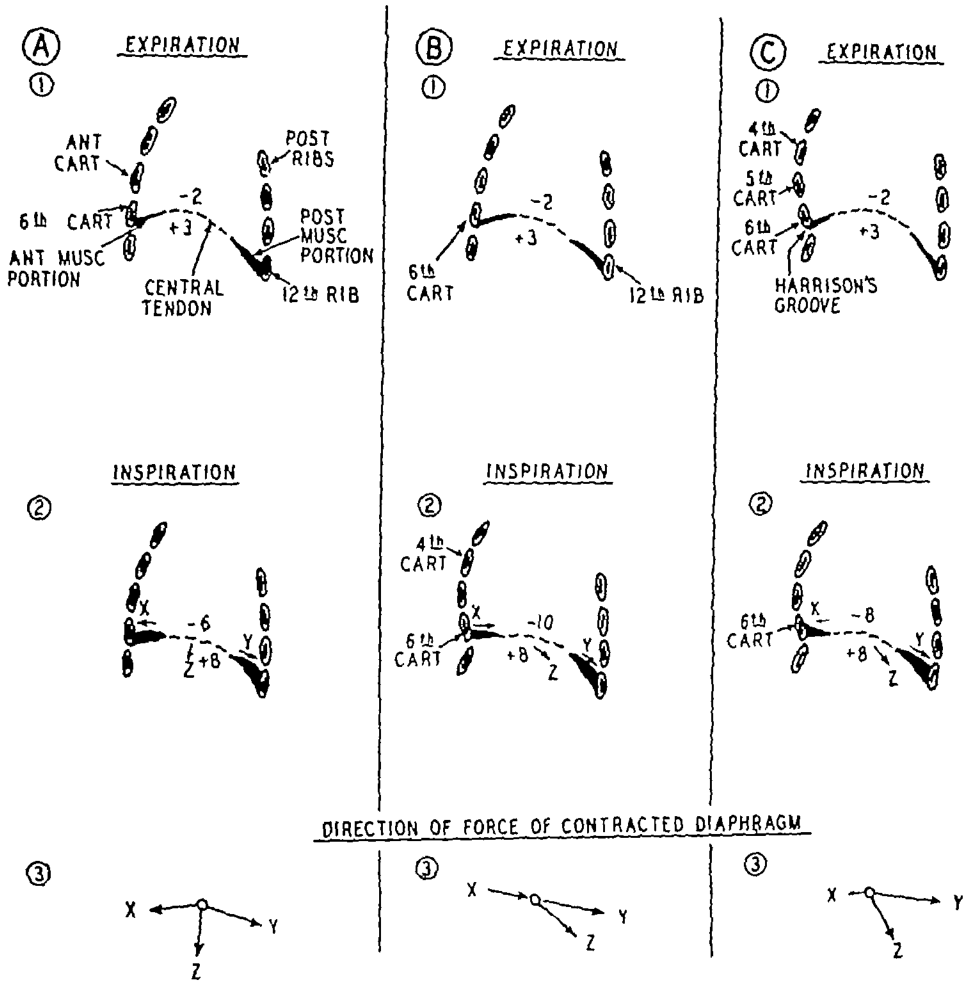

Fig 4 —Lateral views of the thoracic wall and diaphragm showing the forces and directional pull of the anterior and posterior muscle segments in *A* normal infant and in *B* and *C* infant and child with *Harrison's grooves A* 1 2, and 3 show that a normal balanced diaphragmatic contraction in a normal infant produces no retraction of the sixth costal cartilage the point of attachment of the anterior segment *B*, 1, 2 and 3 demonstrate the retraction of the sixth costal cartilage producing Harrison's grooves in an infant during inspiration because of an unbalanced diaphragmatic contraction due to a weak anterior muscular segment or increased intrapleural pressure *C*, 1 2 and 3 demonstrate the contraction of a diaphragm in children in whom the Harrison's grooves have become fixed *O*, origin of unparallel forces, X, direction of anterior force of contracted anterior portion Y direction of posterior force of contracted posterior portion, Z direction of resultant force which makes diaphragm descend

Combined Deformities

Harrison's grooves occur in combination with the two other anterior chest wall deformities known as funnel chest and pigeon breast In funnel chest alone, the sternal or medial portion of the anterior segments of the diaphragm is deficient When Harrison's grooves are present alone the costal or lateral portion of the anterior segment that is attached to the sixth costal cartilage is deficient When they occur with funnel chest, Harrison's grooves are almost completely overshadowed, because the retraction of the chondrosternal area is more diffuse and the grooves merge into the rest of the depression In the pigeon breast deformity, which is usually accompanied by Harrison's grooves, the grooves are more distinct Pigeon breast has always been regarded as a manifestation of rickets Inasmuch as Harrison's grooves are so frequently seen in combination with pigeon breast, they, too, have been ascribed to rickets I have previously attributed pigeon breast to abnormal unbalanced diaphragmatic contractions and described an abnormal diaphragm in a patient with this combination[10]

Determination of Etiology

In a premature or a newborn infant, the presence of Harrison's grooves may indicate mechanical interference with inspiration, therefore, immediate measures must be taken to free the tracheobronchial tree of secretions In the majority of premature infants, the grooves will disappear when the infant attains full development and strength In some newborn infants, the grooves will disappear after a few days, when the lungs are cleared of excessive secretions In a few infants I have seen, the grooves were present for several weeks after birth and then gradually disappeared This was probably due to the fact that the anterior segment of the diaphragm was too weak at birth but gradually increased in strength until it could overcome the posterior pull of the other segments In some otherwise normal infants, Harrison's grooves appear at birth and continue through infancy and childhood into adult life In these cases, the most probable cause is a congenital weakness or deficiency of the anterior segment of the diaphragm On the other hand, if, during the first few years of life, a child with a normal thorax begins to have severe prolonged dyspnea, Harrison's grooves will appear and, if they continue long in childhood, will become permanent. Here rickets may play a contributing part in increasing the severity of the grooves, since the cartilages are more yielding This explains the discrepancy of finding Harrison's grooves in some children who have had frequent attacks of asthma and pneumonia during infancy while the majority of the children with the same illnesses or conditions have normal chests

When dyspnea is severe enough, the unusually strong diaphragmatic contractions not only increase the negative intrathoracic pressure but also retract the attachment of the anterior segment of the diaphragm to the sixth costal cartilage Therefore, the etiology for the grooves in such children actually is the unbalanced diaphragmatic contractions rather than the illnesses or the higher negative pressure Thus, Harrison's grooves are not due to any "sucking-in action" of high negative intrathoracic pressure or a "pushing in" due to the atmospheric pressure, as many have suggested Dyspnea is less apt to produce these grooves during childhood after the thorax has become flat and firm Therefore, if a careful history is determined of a child with Harrison's grooves, particularly as to the time the grooves were first noticed, a more accurate etiology will be obtained Thus, if the grooves have been present since birth, the etiology is that of unbalanced diaphragmatic contractions due to a deficient or weak anterior segment of the diaphragm If the grooves appeared later in infancy and severe prolonged dyspnea was present, then the etiology is unbalanced diaphragmatic contractions resulting from the strong diaphragmatic contraction necessary to overcome the greater negative intrathoracic pressure

Report of a Case

A white 20 month-old female was admitted to St Michael's Hospital and was referred to me for the correction of a severe unilateral Harrison's groove on the right side The medical history was entirely negative except that her grandfather had a typical pigeon breast A horizontal incision was made over the right sixth costal cartilage in the deepest part of the groove The sixth costal cartilage was freed and the soft structures underneath were seen to retract dorsally with each inspiratory contraction of the diaphragm This, by feeling could be ascertained to be caused by the part of the diaphragm that was attached at this point The seventh costal cartilage was also cut free and, when both these cartilages were incised close to the sternum they sprang free rose to the cartilage above and extended beyond the right sternal border About 1 cm of the ends of the sixth and seventh cartilages was removed, and the cartilages were sutured with wire in their new relaxed position The excess pieces of cartilage were diced and placed beneath the sixth cartilage in the retracted space After the wound was closed there was no longer any inspiratory retraction and the contour of the right chest appeared normal

I do not propose surgery for the correction of bilateral Harrison's grooves However, in an infant with a distinct unilateral Harrison's groove creating an obvious deformity, surgical treatment as described above will produce a satisfactory cosmetic result

Summary and Conclusions

The most recent concepts concerning the etiology of Harrison's grooves are controversial, leaving the subject unsettled I have attempted to reconcile some of the anatomic and physiological factors that apply to the mechanism that produces Harrison's grooves The three anterior chest wall deformities, funnel chest, pigeon breast, and Harrison's grooves, are due to unbalanced diaphragmatic contractions produced during infancy by a congenital abnormal development of the anterior segment of the diaphragm The normally developed diaphragm will produce a balanced contraction without retracting any portion of the thoracic wall, whereas weakness or underdevelopment of a portion or of the whole of the anterior segment of the diaphragm will result in an unbalancing of these forces and a retraction of the diaphragm's attachment to the anterior chest wall by the stronger posterior and lateral segments Specifically, in the case of Harrison's grooves, the pull is on that portion of the anterior segment that is attached to the sixth costal cartilage Conditions characterized by severe dyspnea requiring stronger, deeper diaphragmatic contractions may also produce similar unbalanced diaphragmatic contractions If this occurs when the anterior chest wall is still soft and yielding, deformities may be produced or the severity of existing ones increased This theory will not only remove the strong feeling of guilt mothers develop because they blame themselves for the presence of these deformities but also absolve the pediatrician or family doctor for having failed to prevent and treat this deformity

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Dr E A Park of Johns Hopkins Hospital gave advice and counsel in this study

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CERVICAL SPONDYLOSIS AND COMPRESSION OF THE SPINAL CORD

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and
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• *Indentation of the cervical part of the spinal cord by protrusion of intervertebral disks and by osteophytic lipping produces varied neurological symptoms directly by mechanical injury and indirectly by effects on the movement of blood and cerebrospinal fluid Diagnosis depends on cerebrospinal fluid manometry and myelography, for the symptoms may have more than one cause*

In one case, the extensive paralyses in the patient were found to result from amyotrophic lateral sclerosis in addition to osteophytes that had caused marked narrowing of the disk space at the fourth and fifth cervical levels In a second case, gross spondylotic changes in the cervical region coexisted with a sarcoma that was blocking the canal completely in the thoracic region

Laminectomy, with section of the dentate ligament, was done in six cases of chronic cord compression by cervical spondylosis No improvement resulted in one case, and in two the results were hard to assess But in three there was partial success, and two of these patients were relieved of symptoms and enabled to return to their occupations This experience indicated that surgical treatment should be reserved for the patient in whom the symptoms are recent and rapidly progressing

In recent years increasing attention has been paid to the role played by spondylosis in the production of cervical cord syndromes Although as yet little or no mention is made of this subject in standard medical or neurological textbooks, a number of papers have emphasized its importance and frequency, particularly as a cause of disability in the older age groups

Because of the ubiquity of cervical spondylosis in the general population and, in particular, among older people, there is an understandable reluctance to attribute neurological disturbances to this finding, however, as has been shown by Pallis and others [1] during an independent assessment of the radiological and neurological status in a group of elderly people, the connection is by no means fortuitous It may well be, as these authors contend, that it is necessary to revise opinions about the "physiological" nature of various neurological findings in the senescent population With the greater interest in this diagnostic possibility, certain general views have tended to crystallize with regard to problems of etiology, diagnosis, and treatment These have been reviewed recently by Brain [2] on the basis of previous detailed communications,[3] and we, in this paper, wish to present some of these aspects as they have been met with in everyday neurological and neurosurgical practice We are concerned here with cervical spondylosis as a cause of chronic cord compression and not of root pains only

Pathological Mechanism

Gross indentation of the cervical cord by intervertebral disk protrusion and osteophytic lipping with local degeneration of gray and white matter has been described in postmortem studies by Bedford and others [4] These findings probably represent the end-result in an extreme case, and in the more usual situation of the ambulant patient with moderate signs and symptoms it seems unlikely that a permanent state of severe cord compression exists

We have been constantly impressed by the spinal manometric readings in our patients, where observations of pressure fluctuations have confirmed the findings, limited to cases of spondylotic compression, reported by Kaplan and Kennedy [5] With the head bent forward, a free rise and fall is seen on jugular compression and release, whereas in moderate or especially in full retroflexion of the neck, partial or complete manometric block is observed Direct visual confirmation of this phenomenon has been frequently obtainable on myelography, when the column of oil has been seen to be held up or deformed during retroflexion, a free passage being obtained on return of the neck to the normal or flexed position This evidence clearly supports the contention that recurrent partial compression of the cord during the many opportunities presented by neck extension movements during everyday life represents the probable pathological mechanism responsible The compression possibly operates via interference with circulation in the anterior spinal artery, and hence there is recurrent ischemia in the area irrigated by this vessel

Again, one frequently encounters the acute cervical cord syndrome resulting from trauma in patients with previously asymptomatic cervical spondylosis This syndrome was referred to by Brain [3] and emphasized with numerous examples by Symonds [6] The type of trauma is often a fall on the face, and the acute onset, believed to be due to momentary crushing of the cord by osteophytic ridges during the concomitant forcible hyperextension of the neck, may be considered as representing a catastrophic shortening in time of the slow evolution referred to above

Diagnosis

The patients' complaints are generally referred in a quite variable manner to disturbances of function in the limbs Weakness of one or both legs, difficulty in climbing steps, stiffness, and a dragging gait have usually been present for months or years, and the patient is unable to recall the precise time of onset of his symptoms Diffuse weakness in one or both upper limbs, with clumsiness in execution of fine movements, may be the presenting feature, and paresthesias are often complained of Occasionally, disturbances re-

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From the departments of neurology (Dr Braham) and neurosurgery (Dr Herzberger) Tel-Hashomer Government Hospital lated solely to an arm and leg on the same side may awaken suspicions of a hemiparesis of central origin. In some, progressive weakness culminating in severe paraplegia characterizes the picture, although relentless deterioration is not inevitable and stationary periods, or even episodes, of improvement may be reported, especially when there have been opportunities for rest in bed.

The physical signs are no less variable from case to case. In general, evidence of lesions of upper motor neurons supplying the lower limbs dominates the scene, and these changes are often bilateral, even when the patient's complaints are directed to one side of the body only. In the upper limbs, anomalies of the reflexes vary according to the site of the compression, inequality of briskness between the two sides in the presence of bilateral pyramidal signs in the lower limbs constitutes, when present, valuable evidence of a local cervical lesion. Sensory changes are even less constant, both in incidence and in variety. Diminished appreciation of pinprick in the lower half of the body may reach a level many segments below that of the compression. As the condition progresses, so may a gradual rise in this level be evident. Vibration sense in the toes is more commonly diminished than is superficial sensation. Detailed analysis of the subjective and objective sensory and motor patterns is available.[3]

Cerebrospinal fluid manometry has been referred to already, and, whenever performed with the flexion-extension technique described, it has invariably given confirmatory information. The fluid itself has shown no deviation from normal values, except for an occasional moderate rise in the protein content not exceeding 65 mg. per 100 cc. in our series. Myelography has been used to supplement or corroborate changes observed on plain films for accurate localization and for exclusion of other disorders. With a hyperextension technique,[7] no difficulty was experienced in concentrating the oil column in the cervical canal. Convincing evidence of local pressure by spondylotic ridges is thus obtained and most readily visualized in lateral films taken with the patient prone.

Differential Diagnosis

Radiological evidence of cervical spondylosis is very frequent in adults. Many of these people, perhaps the great majority, are free of complaints related to the nervous system, although perhaps objective changes are less rare than may be supposed.[1] It follows that great care must be exercised in attributing neurological signs and symptoms to this cause, even when it may seem anatomically appropriate.

From the review of the varied clinical picture that may result from cervical spondylosis as outlined above, it is clear that this disorder may easily be confused with disseminated sclerosis or subacute combined degeneration of the cord and, when sensory findings are absent, with amyotrophic lateral sclerosis, quite apart from other causes of cord compression, such as new growth. This confusion may operate as it were in both directions, as pointed out by Brain.[3] Thus spondylosis may be unrecognized as being the real cause of cord syndromes, it may be recognized and improperly invoked as the cause of disorders that are, in fact, degenerative, it may coexist with degenerative disorders and contribute in variable measure to the over-all clinical picture. The following representative case histories are illustrative of the diagnostic pitfalls inherent in such an ambiguous situation.

Case 1.—Cervical Spondylosis Complicating Amyotrophic Lateral Sclerosis.—A 55-year-old man gave a history of weakness in the limbs of four years' duration. Beginning in the left hand it had spread to the right side, and later to the legs so that on admission he was completely bedridden and helpless. Gross atrophy of the small hand muscles was seen on both sides, with a lesser degree of wasting but considerable weakness of the more proximal muscles of the upper limbs. There was spasticity of the lower limbs, with extensor plantar responses. The deep reflexes in all four limbs were exaggerated, but there were no sensory changes. Fasciculation was widespread. Anterior and posterior osteophytes were seen on x-ray examination at C-4 to C-5 with marked narrowing of the disk space. Myelography revealed gross identation of the oil column at this level.

On further observation of this patient in the ward a certain thickness of speech was discovered to be of fairly recent onset, according to his relatives. A very brisk jaw reflex was elicited, and there was gross fibrillation of the tongue, an opportunity to witness outbursts of uncontrollable laughter and weeping made certain that, whatever role was played in the total clinical picture by undoubted cervical cord compression the patient certainly suffered also from amyotrophic lateral sclerosis.

Case 2.—Cervical Spondylosis Complicating Compression of Thoracic Cord by Tumor.—A 52-year-old woman complained of increasing difficulty in walking for the previous six months, hitherto attributed to diffuse osteoarthritis. Examination revealed marked inequality of the biceps reflexes (those on the right being greater than those on the left) and increased tone in the lower limbs, with bilateral extensor plantar responses. Superficial sensation, vibration sense and position sense were somewhat impaired in the lower limbs without any clear upper level. These findings were considered to be indicative of a mid-cervical lesion and, indeed, gross spondylotic changes at C-4 to C-6 were appropriately evident radiologically, however, on lumbar puncture, there was complete manometric block in all positions of the head, and the fluid contained 100 mg. of protein per 100 cc. findings rather more decisively pathological than had been within our experience in spondylosis cases. Myelography resulted in the unexpected discovery of complete block at T-9 at which level compression by tumor (sarcoma) was disclosed at a subsequent operation. In this patient, the physical findings could very well have been explained on the basis of the undoubted cervical spondylosis with unfortunate results if confirmatory myelography had not been performed. On the basis of this experience, which was repeated in another patient with high cervical compression due to a meningioma again in the presence of severe cervical spondylosis, we must express disagreement with the views of Allen,[8] who is prepared to make the diagnosis and perform a radical operation without the aid of myelography.

Treatment

If one views the pathological process as essentially a mechanical compressive disorder, relief and perhaps reversal of symptoms could be expected from surgical intervention. This may range from simple decompression by laminectomy, perhaps with division of dentate ligament as recommended by Kahn,[9] to a full-scale attack on the spondylotic ridge itself, with the object of restoring a smooth ventral wall to the spinal canal.[8] In fact, though the question causing most concern to the attending physician is whether he should advise his patient to submit to surgery, there is at present no clear answer to the problem. Nonetheless, on the basis of increasing experience, tentative broad conclusions may be advanced for application and consideration in individual cases.

In 1953 and 1954, operations were performed by one of us (E E H) on 6 of the 11 patients in whom the diagnosis of chronic cord compression by cervical spondylosis was made and in whom no question arose of an alternative explanation for the signs and symptoms Apart from a clinical assessment of the patient's capacity to bear the operation, no special selection of suitability was made in our early cases, there being, in fact, no rigid criteria available In each case, laminectomy was performed with the patient under general anesthesia, the laminas at the site of compression and those immediately above and below it being included The dura was opened, the cord inspected, and the dentate ligaments divided bilaterally It may be mentioned here that dorsal humping of the cord over the spondylotic ridge could usually be detected, pulsation was poor but increased after the dentate ligaments were sectioned In one case, discoloration of the cord was noted at the level of compression In no case of our series was a soft protrusion of the intervertebral disk found

In two cases, the operation was an unequivocal success, the patients were relieved of symptoms and were able to return to their former occupations In one case, no improvement whatever resulted In the remainder, partial success was achieved with moderate regression of symptoms, although, in two of these, factors associated with personality and social background made assessment somewhat dubious

Case 3—Long History, Gross Disability, No Improvement —A 53-year-old man began to notice progressive difficulty in walking, which began 10 years before his admission Within two to three years, he had become bedridden and remained so Approximately two years after the onset of symptoms in the legs, he noticed weakness of the right hand, which later became useless because of contracture Examination showed paralysis and atrophy of the muscles of the hand, with contractures of the fingers on the right, some weakness of small muscles was found on the left The lower limbs presented the appearance of paraplegia in extension, with spasticity of a degree that could not be overcome passively The abdominal reflexes were absent No sensory changes were discovered Gross spondylotic changes at C-4 to C-5 and C-5 to C-6 were seen radiologically On lumbar puncture, partial manometric block was obtained on retroflexion of the neck, the fluid itself was normal Myelography showed indentation of the contrast medium at the level of the cervical lesion

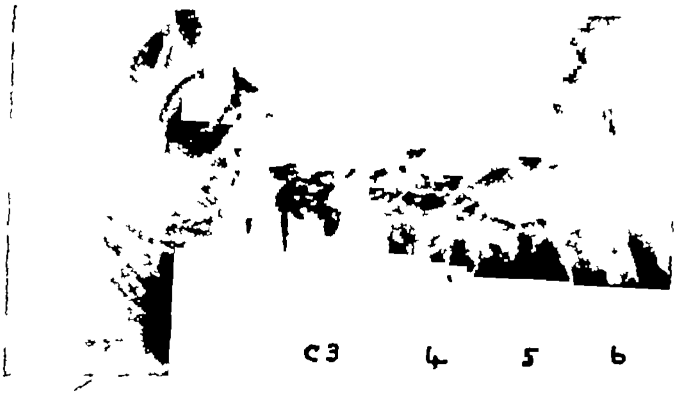
At operation, after laminectomy at C-4, C-5, and C-6, the cord was found to be impaled over the ossified ridges Breathing and arterial pulsation caused blanching of the cord, there was no free movement at this level The dentate ligaments were sectioned The patient claimed some increase of strength in the upper limbs postoperatively, there were, however no objective signs of improvement after several months, and surgery was considered to have been of no benefit in this case

Case 4—Well-Marked Signs and Symptoms, Short History, Considerable Postoperative Improvement —A man, aged 50, was referred for investigation as having hemiparesis of suspected intracranial origin His complaints were limited to the left side and consisted of weakness of the arm and leg, which had become progressively worse in the previous three months, until he was no longer able to work Clinical examination, although confirming the marked weakness of the left limb, demonstrated, however, that all four limbs were involved Abnormally brisk tendon reflexes were present in both arms, an extensor plantar response was found on the right, and position and vibration sense were impaired in the toes on both sides Gross spondylotic changes were seen radiologically at C-5, C-6, and C-7, on lumbar puncture, manometric block was obtained on retroflexion of the head, and the fluid contained 65 mg of protein per 100 cc Myelography showed gross indentation and almost complete blocking of the medium at C-6 to C-7 during retroflexion and a lesser degree of compression at C-5 to C-6

After laminectomy and dentate ligament section (C-5, C-6, and C-7), gratifying subjective and objective improvement was noted within a few weeks—in particular the disappearance of pathological reflexes in the toes, with the return of deep sensation Fine movements in the left hand returned, and the patient was now well able to use thumb and fingers in fastening buttons, a procedure that he had formerly been quite unable to carry out

Case 5—Short History, Moderate Clinical Signs, Excellent Response to Surgery —A 48-year-old man, engaged in heavy physical work, had a six-month history of numbness, beginning in the right hand and later spreading to the opposite side These sensations, felt chiefly in the finger tips, were constant and were followed a few weeks later by loss of power in the right upper limb There were no symptoms referred to the lower limb On examination, there was diffuse weakness in the right arm, bilaterally increased briskness of tendon jerks in the upper limbs, absent right upper abdominal reflex, and inconstant extensor plantar responses X-rays of the cervical spine showed marked narrowing of the space C-4 to C-5 On lumbar puncture manometric block resulted on retroflexion of the head The fluid itself was of normal composition Myelography revealed marked pressure on the cord at the level C-4 to C-5, and lesser deformity at C-5 to C-6 and C-6 to C-7 (see figure)

At operation, the laminas of C-4 to C-7 were removed bilaterally, marked spondylotic ridges were noted at C-4 to C-5 and C-6 to C-7, with a somewhat lesser elevation at C-5 to C-6 The cord paled at each pulse and respiration, it remained immobile over these segments until the dentate ligaments were sectioned Within a few weeks, the patient was completely free of his preoperative symptoms and signs and shortly afterward returned to his former occupation



Lateral cervic myelogram (case 5) with patient prone Narrowing of the C 4 to C 5 interspace is seen and at this level the oil column is held up by the posteriorly projecting osteophytic ridge The film demonstrates the tenting effect of elevation of the dura by the ridge A somewhat lesser degree of retroflexion of the neck permitted immediately before this film was taken allowed a few drops of the contrast medium to trickle in a cranial direction and these are seen to mark the superior incline of the tent opposite C 4 Minor elevations are recognizable at C 5 to C 6 and C 6 to C 7

It will be noted that in patients at clinical extremes, as it were, the results of operations are such as might have been anticipated The patients with short histories, with signs of cord involvement but as yet no crippling disability, did best, the bedridden spastic patient with a long history received no benefit Intermediate cases were partially improved, and external factors were important in determining the patient's personal assessment In general, we would consider it wise to recommend a preliminary period of observation, we advise intervention where deterioration is plainly evident both to the patient and to his medical attendant The radical operation of total extirpation of the offending bony ridges has not been attempted on any of our patients Although apparently a safe procedure in the hands of its chief advocate,[8] it is certainly a much more formidable operation than the conservative operation generally practiced, which, as is evident from the two latter case histories, may give perfectly satisfactory results

Summary

Spondylosis of the cervical vertebrae may give rise to a syndrome of cord compression with a variety of subjective and objective neurological disturbances in the upper and lower limbs These disturbances are believed to be due to repeated minor traumas of the cord during flexion-extension movements of the neck In cases of cervical cord lesions due to spondylosis an attitude of critical alertness in differential diagnosis is important as shown by cases illustrating the possibilities of deception in this field Myelography is indispensable in the avoidance of errors Experience with surgical treatment suggests that this be reserved for the patient with a short history and a downhill course surgical treatment does not seem advisable in the management of the patient with advanced paralysis In cases suitable for surgery satisfactory results are obtained by a conservative operation limited to laminectomy and section of the dentate ligament

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CLINICAL NOTES

THROMBOCYTOPENIC PURPURA RESULTING FROM SULFISOXAZOLE (GANTRISIN) THERAPY

REPORT OF TWO CASES

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and
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Reported blood dyscrasias resulting from sulfisoxazole (Gantrisin) therapy have been infrequent This drug is considered one of the safest of sulfonamides for general use,[1] and we have been able to find only one other reported case of thrombocytopenic purpura due to therapy with sulfisoxazole[2] However, in our own practice we have encountered the following two cases of this blood dyscrasia that are apparently related to the administration of sulfisoxazole

Case 1 —A 69 year-old female was admitted to the Bristol Memorial Hospital on March 26 1954 because of a purpuric skin rash of four days duration She had been treated in the past for hypertension generalized arteriosclerosis and osteoarthritis On March 12 1954 2 tablets (0.5 gm) of sulfisoxazole four times daily were prescribed for a urinary tract infection making a total of 50 tablets over a period of one week. Three days after cessation of therapy and four days before admission she developed a generalized purpuric rash which gradually became more pronounced and particularly marked over the legs There was no other associated abnormal bleeding such as melena, hematemesis epistaxis or bleeding gums The temperature was 99 4 F (37 4C) pulse 84 per minute respiration 20 per minute and blood pressure 220/120 mm Hg Generalized purpura was present over the body, confluent in places over the legs Ophthalmoscopic examination disclosed arteriosclerotic changes in the fundi without hemorrhages or exudates The heart was enlarged to the left with a grade 2 systolic murmur over the apex The aortic second sound was accentuated The remainder of the physical examination was noncontributory The hemoglobin level was 11 5 gm per 100 cc , the red blood cell count was 4,200 000 per cubic millimeter, and the white blood cell count was 10,900 per cubic millimeter, with a normal differential The corrected sedimentation rate was 22 mm in one hour and the hematocrit was 36% The platelet count was 21 000 per cubic millimeter (indirect method) and the platelets appeared reduced to almost absent on Wright-stained smears of the peripheral blood The clotting time (capillary tube method) was one minute and 30 seconds and the bleeding time (ear) was prolonged The tourniquet test (80 mm Hg for five minutes) gave strongly positive results The prothrombin time was 14 5 seconds with a control of 14 5 seconds The Kahn was negative. A catheterized urine specimen contained a trace of albumin no sugar and a normal sediment Treatment during hospitalization was entirely symptomatic and supportive Within two days the purpura began to fade and no new lesions appeared The platelet count on March 30 four days after admission had risen to 156 000 per cubic millimeter and the purpura had largely disappeared The patient was discharged on April 1 and no further bleeding phenomena or purpura had developed when she was last seen on Jan 10 1955

Case 2 —A 64-year-old male was admitted to the Bristol Memorial Hospital on Oct 27 1953 because of vomiting He had had epigastric distress intermittently for several years usually relieved by milk or alkalis This gastric discomfort had been persistently present for several weeks and for two weeks prior to admission he had vomited frequently For one week he had been unable to retain any food His temperature was 98 6 F (37C) pulse 92 per minute respirations 28 per minute, and blood pressure 180/100 mm Hg He was a thin elderly man who appeared to have lost weight The skin was dry and inelastic and there was moderate pallor of the skin and mucous membranes The heart was not enlarged the sounds were of good quality the rhythm was regular and there were no murmurs or thrills The remainder of the physical examination was unremarkable Urinalysis showed a specific gravity of 1 014 absence of sugar and 2+ albumin and the sediment contained 25 to 30 white blood cells 3 to 4 red blood cells and occasional granular casts per high power field The red blood cell count was 3 400 000 per cubic millimeter hemoglobin level 9 0 gm per 100 cc white blood cell count 12 800 per cubic millimeter and the differential was normal The corrected sedimentation rate was 18 mm in one hour and the hematocrit was 24% The nonprotein nitrogen level was 99 mg per 100 cc, and the fasting blood sugar level was normal Roentgenograms of the chest showed no pulmonary or cardiac abnormalities Gallbladder series disclosed a poorly functioning gallbladder Gastrointestinal series showed antral spasticity and irritability but no ulcer crater or deformity of the stomach or duodenum Several small diverticula were seen in the descending colon on barium enema films Skull roentgenograms were normal and the electrocardiogram was essentially normal.

Initial hospital therapy consisted of intravenously given dextrose with saline solution and other symptomatic and supportive measures He also received 2 pt of whole blood without reaction On Oct 28 2 tablets (0 5 gm) of sulfisoxazole four times daily were given because of the pyuria On Nov 2 while the patient was still receiving sulfisoxazole therapy he was found to have a generalized purpuric rash and he began to bleed from the mouth nose and gastrointestinal tract Use of the drug was immediately discontinued The next day he passed several large tarry stools became weak and faint, and the blood pressure dropped to 110/70 mm Hg The bleeding time was greater than 15 minutes clotting time (Lee and White) 12 minutes, platelet count (indirect) 42 000 per cubic millimeter, clot retraction poor and the tourniquet test was markedly positive Smears of the peripheral blood showed that the platelets were greatly diminished The prothrombin time was 80% of normal During the next several days, he continued to bleed from the gastrointestinal tract, necessitating a total of 19 transfusions to maintain a hematocrit between 25 and 30% during the period between Nov 2 and Nov 8 On Nov 6 the platelet count was 39,000 per cubic millimeter, but it had risen to 229,000 per cubic millimeter by Nov 8 The melena ceased between Nov 7 and Nov 8, and the purpura began to fade On Nov 8 the bleeding time was 30 seconds and the tourniquet test was negative On this date the nonprotein nitrogen level was 115 mg per 100 cc In the interval between Nov 8 and the day of discharge, there was no further purpura or melena The hematocrit was 40% on the day of discharge with the addition of two more whole blood transfusions On Nov 13 the nonprotein nitrogen level was 93 mg per 100 cc, and the phenolsulfonphthalein excretion was 4% in 15 minutes and 16% in two hours Pyelograms by the intravenous route were essentially normal except for poor dye concentration The patient was discharged from the hospital on Nov 17 He was last seen in the office on Jan 21, 1954, at which time he felt well in general, the blood pressure was 170/100 mm Hg, hematocrit 43%, nonprotein nitrogen level 71 mg per 100 cc, and specific gravity on concentration tests 1 010 Urinalysis contained a trace of albumin, no sugar, and occasional white blood cells and granular casts

Summary and Conclusions

It is generally thought that sulfisoxazole (Gantrisin) is one of the safest of all sulfonamides as far as blood reactions are concerned, however, the data presented in the two reported cases seem rather definitely to point to the serious complication of thrombocytopenic purpura developing with the administration of this drug The patient in the first case recovered rapidly without any serious hemorrhagic difficulties after recognition of the disorder The patient in the second case presented another version in that numerous transfusions were necessary to sustain his life until there was spontaneous recovery Probably, sulfisoxazole is one of the safer sulfonamides as compared with some of the other drugs, as far as blood dyscrasias are concerned On the other hand, it would seem obvious that this drug should *not* be used indiscriminately, but only when there are adequate indications

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ELKOSIN IN THE MANAGEMENT OF URINARY TRACT INFECTIONS

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Helen Ellis, B S
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Despite the many new antibiotics that have been introduced during recent years, certain sulfonamide preparations still maintain a position of great usefulness in the management of urinary tract infections Their high degree of effectiveness against the common invaders of the urinary system and their low cost, low toxicity, and ease of administration are a few of the reasons for their wide clinical acceptance

A recent modification of the basic sulfonamide radical toward greater solubility has led to the development and introduction of Elkosin [N¹-(2, 6-dimethyl-4-pyrimidyl) sulfanilamide] Zeigler, Bagdon, and Shabica[1] in an in vitro solubility study of six therapeutically active forms of the commonly used sulfonamides found Elkosin " clearly the most soluble drug in the entire sulfapyrimidine class in the pH range 4-7" Since infection tends toward a lowering of the urinary pH, this high solubility of Elkosin in the lower physiological ranges is of particular importance in diseases of the urinary tract The studies of Prior and Saslaw[2] indicated that Elkosin was well absorbed, well tolerated, gave high blood levels, and was excreted within 48 hours with only 13 to 15% acetylation Reports on the clinical effectiveness of the compound were also favorable[3]

It was decided to undertake a study of Elkosin to evaluate its usefulness in the treatment of the common urinary tract infections usually encountered in an outpatient clinic of a large hospital Patients with urinary tract infections, confirmed by urinalysis and urine culture, were treated without further selection The drug was administered in doses of 1 to 1 5 gm four times daily for one week Urinalysis and repeat urine culture were obtained 24 to 48 hours after discontinuing use of the drug If symptoms, urinalysis, or cultures revealed the infection to be persistent, the course of drug treatment was repeated for another week Appropriate investigative studies were carried out during and after therapy No other definitive therapy was employed except for dilatation of urethral strictures

The patients were listed as cured if, after the course of treatment with Elkosin, they were asymptomatic, the urine was free of white blood cells and bacilli, and the culture was negative Patients failing to meet any of these criteria or returning during the study with infection after a maximum of two weeks' therapy were listed as not cured Results are shown in table 1 A total of 81 patients were studied, 34 6% of these responded to Elkosin therapy Thirty-three of the 81 patients had acute infections (by history), of these, 14, or 42%, were cured Of 48 chronic infections (by history), 14, or 29%, responded Obstructive uropathy was discovered in 18 of the patients Ten of 18 patients with obstructive uropathy failed to respond Failure also occurred in four patients with urinary tract calculi and in one with tumor

Table 1 —*Results of Elkosin Therapy in Eighty One Cases of Urinary Tract Infection*

	Cured	Not Cured
Patients	28	53
%	34 6	65 4
Sex		
Male	9	15
Female	19	38
Obstruction	8	
Mild		5
Severe		5
Calculi		4
Tumors		1
Acute Infection	14	19
Chronic Infection	14	34

The bacteriological flora encountered (table 2), is fairly representative of that usually reported in urinary tract infections The usual resistance of Proteus vulgaris and Pseudomonas is well shown The resistance

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From the Harrison Department of Surgical Research, Schools of Medicine, University of Pennsylvania, and the Department of Urology, Hospital of the University of Pennsylvania of mixed infections over those due to one organism is again emphasized The listing of 12 secondary invaders demonstrates the tendency of resistant organisms to grow out when uropathy favoring persistence of infections exists No serious toxic symptoms were seen Therapy with the drug was discontinued in two cases because of nausea Crystalluria was not detected in any patient during treatment

Comment

Patients were considered cured only if (1) they were asymptomatic, (2) their urine was free of white blood cells and bacilli, (3) the urine culture was negative, and (4) they did not return for treatment during the course of the study Considering the resistance of Streptococcus faecalis, P vulgaris, and Ps aeruginosa to treatment and the difficulties that usually present themselves in overcoming mixed infections in the urinary tract, the results with Elkosin may be interpreted as very good When one pathogen was involved, cure was established in 18 of 30 patients In 8 of 18 patients with obstructive uropathy cure was accomplished Acute infections responded very well to Elkosin therapy The over-all results indicate that Elkosin is of value in the management of commonly encountered urinary tract infections

Table 2 —*Bacteriological Data in Eighty One Cases of Urinary Tract Infections*

Organism or Type of Infection	In Patients Cured No	In Patients Not Cured No
Escherichia coli	10	36
Streptococcus faecalis	11	37
Aerobacter	2	6
Proteus vulgaris	1	6
Hemolytic Micrococcus pyogenes var aureus	1	4
Hemolytic M pyogenes var albus	9	12
Pseudomonas aeruginosa	1	9
Gram negative rod (unidentified)	1	
Other streptococci	2	1
Fungus		1
One pathogen	18	12
Mixed infection	10	41
Secondary invaders		12

Summary

Twenty-eight patients (34 6%) of a group of 81 with unselected urinary tract infections were clinically and bacteriologically cured by treatment with 4 to 6 gm of Elkosin [N^1-(2, 6-dimethyl-4-pyrimidyl) sulfanilamide] per day for 7 to 14 days The usual bacteriological flora seen in urinary tract infections and infections complicated by obstructive uropathy, calculi, or tumor was noted No serious toxic symptoms were encountered We have found that Elkosin, one of the newer sulfonamides, is an effective addition to the physician s armamentarium in urinary tract infections

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The Elkosin used in this study was supplied by Ciba Pharmaceutical Products Inc. Summit, N J

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COMMITTEE ON COSMETICS

Report to the Committee

This is the second in a series of two reports on the effects of the sun on the skin, which was prepared at the request of the Committee

Veronica Lucey Conley, *Secretary*

THE EFFECTS OF SUNLIGHT ON THE SKIN

Beatrice M Kesten, M D., New York

For centuries, men have recognized the therapeutic action of sunlight and have taken for granted that sunbathing increases man s energy and sense of well-being Heliotherapy, however, was first advocated toward the end of the 18th century by Faure for chronic ulcers of the skin and by Chauvin for relief from apathy and anemia

In 1877 Downs and Blunt discovered the bactericidal action of sunlight, and at the end of the century Finsen established that this action, as well as the production of sunburn, was caused by the invisible ultraviolet rays of the sun. With artificial light that imitated the solar spectrum and with sunlight, he and Bernhard pioneered in the successful treatment of diseases of the skin and other organs In the 20th century the biochemical and physical properties of sunlight have been determined

Apparently the conservative or rational use of sunlight or its artificial substitutes is healthful to most individuals, but the current habit of exposing to intense or prolonged sunlight considerable areas of the nonacclimated skin during the first days of the season is open to question There is a notable seasonal incidence of temporary incapacitating sunburn and an increasing number of diseases caused or adversely affected by exposure to the sun s rays In addition, chronic excessive exposure to the elements prematurely ages the skin and promotes development of keratoses and epitheliomas

Distressing sunburns or other adverse effects on the skin frequently follow when the properties of solar radiation are disregarded The intensity of the sun s rays reaching the earth s surface directly depends chiefly on the thickness of the atmosphere Smoke, green foliage, and the brown earth absorb considerable sunlight, whereas water and dust scatter sunlight In addition to direct solar radiation a great amount of the sunburn radiation is scattered by the sky, light clouds, or fog and reflected from surroundings Sky radiation accounts for the severe sunburn that may follow sunbathing on a hazy or foggy summer day Water, ice, and snow reflect sunlight, thereby increasing the dosage of a given exposure The reflection of the sun s rays from the surface of water is twice as great as from a green field but only one-fourth as much as from fresh-fallen snow The intensity of ultraviolet rays also varies with the time of day, season, altitude,

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Assistant Professor of Dermatology Columbia University College of Physicians and Surgeons and latitude Individuals most likely to suffer detrimentally from exposure to the sun are those with blue eyes, red hair, and fair skin

The sun's rays of less than 2,900 A do not penetrate the atmosphere, and the biological action of wavelengths longer than 14,000 A in sunlight have not been sufficiently explored In the continuous solar spectrum of electromagnetic waves with which we are concerned, ultraviolet rays fall between 2,900 and 3,900 A, visible light between 3,900 and 7,700 A, and near infrared between 7,700 and 14,000 A About 1% of the sun's rays are in the ultraviolet range, and under optimal conditions only about 0 2% produce erythema In winter, when the sun's position is low and toward the horizon, wavelengths of less than 3,000 A do not reach the northern part of the United States

The erythema caused by the sun's rays is produced by strictly defined wavelengths of the ultraviolet between 2,800 and 3,132 A, the so-called sunburn range Ninety to 95% of this erythemal radiation is absorbed by the normal white skin In correlating the wavelengths of solar radiation with sunburn-producing potential, it was found that at 2,925 A erythemal effectiveness was 70%, at 2,967 A it rose to 100%, at 3,132 A there was a steep decrease to 2% In experiments conducted in the Midwest, Luckiesh[1] determined that 20 minutes' exposure to the midday sun in June produced a minimal perceptible erythema on the average untanned white skin, 50 minutes' exposure was followed by a vivid erythema and pigmentation, and exposure for 100 minutes was followed by a painful sunburn

After sufficient exposure to the sun, erythema appears after a latent period of 2 to 6 hours in the normal untanned white skin and usually reaches its maximum in about 10 hours Depending on the exposure and the tolerance of the skin to sunlight, the response varies from a mild erythema to an intense sunburn with edema and blistering of the skin and systemic symptoms Pigmentation usually begins with the subsidence of the sunburn erythema and is augmented by the concomitant exposure of the skin to the wavelengths between 3,300 and 4,400 A in the solar spectrum, because the long-wave ultraviolet rays darken preformed melanin granules As the number of pigment granules in the deepest layers of the epidermis increase and migrate upward, they help protect against further sunburn The natural skin oils and cellular debris on the surface of the skin offers only minor protection

Thickening of the horny layer of the skin, subsequent to exposure, is thought to be the main mechanism by which accommodation to sunlight occurs Not only does the horny layer absorb light strongly in the ultraviolet zone, but the flattened horny and granular layers of the epidermis reflect and scatter light To a large extent this prevents the sun's rays from reaching the easily damaged deeper skin layers Measurements of transmission of sunburn radiation by the skin suggest that a considerable degree of protection is afforded by relatively slight thickening of the horny layer

Sweat also, owing to its absorption of wavelengths up to 3,300 A, provides some protection against sunburn Goldring and co-workers have called attention to the presence of a substance in human sweat with intense absorption bands in the ultraviolet range that are capable of interfering with ultraviolet spectrophotometric readings

In addition to the common sunburn, it is assumed that ultraviolet rays emitted by the sun enter into the pronounced persistent changes that occur in the skin of individuals, such as sailors and farmers, habitually exposed to wind and sun In this heliodermatosis, excrescences and scaly erythematous lesions appear that could become malignant tumors

Allergic eruptions caused by sunlight are not uncommon[2] Intense inflammatory reactions may follow exposures that would cause no perceptible reaction in a normal skin Urticaria and various types of dermatitis, occasionally associated with purpura, may appear after minimal exposure Of particular diagnostic significance are the lesions, clinically indistinguishable from the early lesions of lupus erythematosus, that appear on areas exposed to the sun

Chemicals such as porphyrins, eosin, other fluorescent dyes, and sulfanilamide photosensitize the skin to long-wave ultraviolet light and to visible rays Of current interest are the rare reports of photosensitivity after oral administration of *p*-aminobenzoates, salicylates, chlortetracycline, stilbamidine, phenylbutazone, and antihistaminics, and the more frequent reports of sensitivity after chlorpromazine therapy Sometimes the skin is sensitized to sunlight after repeated contact with certain plants, essential oils often found in perfumes and cosmetics, and coal tar pitch and its distillates Recently Burckhart reported that a laundress developed an acute dermatitis of areas exposed to the sun after using a product claimed to transform ultraviolet to visible light, thus making the washing appear "whiter than white" The skin reactions to photosensitization tend to localize in areas exposed to the sun regardless of the route of sensitization These eruptions have been deemed allergic because they can be reproduced by exposure to the sun, lesions were absent when the skin was protected from the sun, transferable skin-sensitizing antibodies were isolated in the serums, and successful desensitization was accomplished by graded exposure to sunlight

In addition to producing sunburn allergies and photosensitization, sunlight may precipitate or aggravate a number of diseases The often deleterious effects of undue sun exposure on persons with pulmonary tuberculosis are well known Precipitation or provocation of lupus erythematosus has been suggested by the history of severe sunburn preceding the appearance of symptoms or the increase in severity of existing lesions after exposure to sunlight, by the predominance of lesions on areas exposed to the sun, by the increased incidence of lupus erythematosus during the months of greatest sunlight, and by the lower ratio of lupus erythematosus in Negroes, whose skin is less sensitive to sunburn than the white skin In this disease, about one-fourth of the patients tested for light sensitivity were photosensitive, and lesions characteristic of the disease were produced in a few patients after exposure to sun or ultraviolet light In areas similarly exposed but protected by chemical sunscreening agents, experimental skin lesions did not appear The administration of certain antimalarial drugs, which are sunscreening agents, is effective in the treatment of many persons with the discoid type of lupus erythematosus, but it is not known whether their therapeutic action has anything to do with their sunscreening effect

Sunlight may precipitate a variety of lesions or pigmentation in patients with inherited skin diseases, disturbed porphyrin or endocrine metabolism, or severe malnutrition resulting from starvation or alcohol Isomorphic reactions produced by the sun's rays occur occasionally in the eruptive stages of some skin diseases In xeroderma pigmentosum, sunlight apparently promotes malignant changes in the skin

The ingestion of antimalarial drugs such as quinine, quinacrine hydrochloride, chloroquine phosphate, and pamaquine have effectively controlled a number of eruptions caused or precipitated by sunlight Chloroquine phosphate, given one to four times daily in tables containing 0 25 gm, is currently the drug of choice of most dermatologists In specific instances the oral administration of one of the following drugs has suppressed light-sensitive eruptions diphenhydramine hydrochloride, tripelennamine, crude liver extract, and estrogenic and gonadotropic hormones

It has long been known that coating the skin with oils, with substances containing opaque powders, or with extracts from the bark of special trees offered some protection against sunburn Thirty years ago Rothman demonstrated that *p*-aminobenzoic acid had an absorption band in the ultraviolet spectrum that embraced all sunburn rays Later he and Rubin suggested the use of 15% *p*-aminobenzoic acid in Ruggles cream, which is an effective antisunburn cream [3] If a lotion is preferred, Bell [4] has suggested the following formula 5% sodium *p*-aminobenzoic acid with 2% polysorbate 80 in equal parts of alcohol and water

The so-called chemical sunscreens absorb at least 90% of the ultraviolet spectrum that produces sunburn [5] They first appeared commercially in the U S in 1928 and now number well over a hundred The more commonly used compounds are *p*-aminobenzoates, *o*-aminobenzoates (anthranilates), salicylates, cinnamates, hydroquinones, and tannic acid More recently, digalloyl trioleate, said to be from the European black geranium, has been found effective in concentrations of 3 to 5% Menthyl anthranilate, in concentrations of 5 to 15%, also has been used as a sunscreen, but its absorption of sunburn rays is relatively weak. Most dermatologists agree that cortisone and hydrocortisone are ineffective, as their absorption bands do not cover the erythemogenic region

Some oily substances offer considerable protection from sunburn, as for example yellow petrolatum, which has a strong absorption band in the erythemogenic region Oils extracted from seeds and nuts, such as sesame, peanut, and walnut oil, absorb a considerable percentage of the ultraviolet rays

Further protection is afforded by opaque chemicals (sometimes referred to as physical sunscreens) that scatter light The substances more commonly used, which depend on scattering properties rather than on absorption of ultraviolet light, are titanium dioxide, talc, kaolin, zinc oxide, and bentonite Titanium dioxide scatters most ultraviolet rays between 2,900 and 3,900 A

The ideal suntan preparation should be hypoallergenic, nonirritating, nontoxic, stable in sunshine, and should protect the skin from sunburn for three or four hours after application, it should also be nonstaining and reasonable in cost Cosmetic chemists continue to strive for this ideal

In the treatment of diseases produced or adversely affected by sunlight and requiring local protection, it is well to ascertain the individual s degree of intolerance, the most effective sunscreening agent, and the wavelengths that produce the abnormal reaction To determine the degree of intolerance, small areas of the patient s skin are subjected to the midday sun, and the minimum time required to produce a perceptible erythema is noted The most effective sunscreen may be then determined by applying various preparations to small areas of skin previous to testing with sunlight An effective preparation should protect the skin from about 10 times the amount of sunlight that causes a perceptible erythema By covering small areas of skin before exposure to the sun's rays with glass filters having known light transmittance curves, the approximate wavelengths producing abnormal reactions may be determined

Although sunburn and many of the abnormal reactions to the sun's rays are caused by wavelengths of less than 3,100 A, other effects, such as porphyrias, sensitivities to fluorescent dyes, and the phytophotodermatoses, follow exposure to longer wavelengths of the ultraviolet range Solar urticaria is unique in that it may be caused by the blue violet of visible light or by specific wavelengths within the ultraviolet range in different patients In one case, near infrared rays were reported as having been urticariogenic The various topical preparations that act as sunscreens against sunburn offer little if any protection against wavelengths beyond the ultraviolet spectrum

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DIRECT MEDICAL SUPERVISION OF REHABILITATION PROGRAMS

GUEST EDITORIAL

Frank H. Krusen, M.D.

In a previous editorial[1] in THE JOURNAL it was mentioned that "Rehabilitation may be defined as the process of assisting the handicapped person to realize his potentialities and goals physically, mentally, socially, and economically." Furthermore, it was noted that "Where rehabilitation centers have been established, they find it necessary to provide physiatrists, physical therapists, occupational therapists, speech and hearing therapists, clinical psychologists, nurses, a prosthetic service, vocational evaluation, counselling, and training service, social service, and a therapeutic recreation service."

In the state of Minnesota, for example, the board of health has determined that, at present, only two such complete centers exist. The board estimated also that eventually there should be one such center for each 300,000 to 500,000 population. Therefore, the state hopes finally to have seven such centers. It is recommended that rehabilitation centers be affiliated with community general hospitals and that there be direct medical supervision of all the ancillary workers in each center. In the Minnesota plan, in order to bridge the gap between the present shortage of rehabilitation facilities and the real need, six small "satellite" centers have been established, under medical supervision, in outlying communities. In no instance has a lay therapist in one of these centers been deprived of the direct medical supervision he requires, and the centers are so distributed that, with modern transportation facilities, no patient requiring rehabilitation need be deprived of the chance to receive it.

Delagi and his associates[2] have mentioned that "Recent articles on 'teamwork' in the field of rehabilitation have created conflicting concepts as to the role of the physician. Not only are members of the allied professions, such as vocational counselors and psychologists, questioning the position of the physician as the inherent leader of the rehabilitation team, but patients, too, are becoming confused about their relationship with their physicians." They concluded that it is "fundamental in the philosophy and practice of medicine that physicians, not members of allied professions, are charged with primary responsibility for patient care."

It is desirable, then, to stress the need for direct medical supervision of rehabilitation centers or programs by competent physicians specially trained in the clinical aspects of care of the disabled and in the complicated techniques of physical, psychological, and social rehabilitation. Preferably, such a medical director should be a physiatrist (a physician trained in physical medicine and rehabilitation), but, since such specialists are in short supply, the director need not necessarily be a physiatrist. Any physician who is particularly interested in this field, such as an orthopedist, psychiatrist, or industrial physician, might direct such a center provided he will take the time to train himself in the clinical and technical aspects of the field and not leave these aspects of the work to lay persons who are not really trained for such medical responsibilities. If a physician who is not well trained in the clinical aspects of rehabilitation and who has not clearly determined his responsibilities attempts to direct such a program he may get off on the wrong track.

When groups planning new rehabilitation facilities attempt to organize their programs by employing a "coordinator" to bring together all the rehabilitation skills in a certain institution, they soon find that they must have a competent clinician well trained in all the techniques of physical, mental, social, and economic rehabilitation to direct their programs properly. Actually, the best solution is always to start with a well-organized medically directed department of physical medicine and rehabilitation and to coordinate all the rehabilitation activities through this department. As an example, one planner[3] of a new rehabilitation program finally decided that all that would be done for the untrained participating physician would be to make him "aware of what is available" and that 'he himself would not provide it anymore than he would do biochemical determinations on his patients' blood.' Still another coordinator[4] who is planning a rehabilitation program at a large medical center concluded that he should have a trained physiatrist directing all of the coordinated medical and ancillary rehabilitation services at his institution.

The patterns established in existing successful hospital programs for rehabilitation should be followed. The programs at Michigan University Hospital, Ohio State University Hospital, St. Francis and Methodist hospitals in Peoria, Ill., the University of Minnesota Hospital, and Grace Hospital, Yale University, are good examples. A recent special issue of the journal *Hospitals*[5] discusses in detail the planning and actual construction of hospital rehabilitation facilities.

From the Section of Physical Medicine and Rehabilitation, Mayo Clinic, and the Mayo Foundation, Rochester, Minn. The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

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Above all, when rehabilitation programs are being established, it should be remembered that, to be effective, they must have direct medical supervision of every phase of the program by a competent, specially trained physician who is a clinician and not just a coordinator Despite the fine capabilities of the therapists, counselors, and other ancillary workers, such lay persons should never be permitted to assume responsibility for any of the medical diagnostic functions or to render clinical judgments regarding any rehabilitation procedures While it is perhaps true that "rehabilitation is everybody's business," only a medical expert should direct a medical rehabilitation program

BREAST FEEDING

For many years there has been an increasing tendency for mothers in the United States not to try to nurse their babies or to make a halfhearted attempt and give up within a few weeks Pray and his coworkers[1] state that in a series of 3,700 infants only 34% were breast fed for over two months Oberman and Burke[2] put the proportion even lower, especially in the northeastern states The formulation of artificial feeding has been so perfected in recent years that Holt[3] says that there is no longer any nutritional advantage to prescribing human milk but that certain advantages to breast feeding remain One of the chief of these lies in its freedom from bacterial contamination It has the further advantages that it is economical and requires no elaborate preparation, improves the parent-child relationship, and is less likely to be associated with infant eczema and other allergic manifestations There are practically no disadvantages, and breast feeding is contraindicated only if the mother has tuberculosis, severe debility, mastitis, or retracted nipples or if the infant has a harelip or cleft palate According to Richardson[4] almost every mother can nurse her baby if she and her physician wish it and if she will learn the technique What then are the reasons for failure?

Oberman and Burke state that the chief reason more mothers do not nurse their babies is that physicians and hospital personnel do not take the time to instruct them in its advantages and technique Some physicians even discourage breast feeding Newton and Newton[5] state that a physician's judgment regarding breast feeding is influenced not only by recent research findings but also by whether his wife breast fed his own children. Among some mothers an attitude that breast feeding is unfashionable or even shameful has sprung up, others believe that it will cause them to gain weight, and others fear that it will tie them down

There is a psychosomatic reflex mechanism that influences the expulsion of already secreted milk in the breast, which is known as "let down" The Newtons,[6] in studying this phenomenon, found that women who were unsuccessful in nursing their babies had less complete let down than the successful mothers Sucking is the primary stimulus to let down, but the reflex is also conditioned by the sight of the baby and anticipation of nursing A self-demand schedule of nursing insures more vigorous sucking on the part of the infant, but if the baby does not get much milk the sucking vigor may traumatize the nipples This inhibits the let down and sets up a vicious circle This can, however, be prevented by giving the mother an injection of oxytocin prior to nursing as this drug causes let down even in the presence of psychic inhibiting factors In another study, the Newtons[7] observed the influence of the attitude of the mother toward nursing her baby on her ability to nurse Those who wanted to or were determined to nurse their babies had a much greater degree of success, as was to be expected, than did those who were undecided or indifferent or those who gave up easily However, attitudes were not influenced by previous experience with nursing or by the amount of milk the mother thought she had The authors believe that at least three psychosomatic mechanisms influence the course of lactation (1) the stimulation of sucking, (2) the let down, and (3) the blood flow to the breasts The mother who is doubtful of her ability to nurse her baby successfully often allows less nursing time at each feeding, thereby greatly reducing the first factor, pain, fear, and emotional tension have been shown to inhibit let down, and the blood flow to the breast is likewise sensitive to emotional stimulation

Richardson found that complete emptying of both breasts at each feeding is essential to maximal production, that heavy work cuts down production, that highstrung women are not good producers of milk, and that production normally increases until the baby is about 6 weeks old and then levels off If the baby does not empty both breasts at each feeding, they should be emptied by manual expression This also serves to show whether the baby is actually getting any milk and in most cases demonstrates to the mother that she does have milk Although giving of complementary feedings at first may lessen the mother's anxiety, it also lessens the nursing vigor of the baby and Pray advises against it in the first four days Exclusion of visitors while the mother is nursing is an aid to successful breast feeding in many cases The consensus seems to be that many women who do not nurse their babies could do so successfully if a positive attitude toward this function were fostered early in pregnancy and adequate instructions were given A revival of demand feeding rather than rigid adherence to a schedule is an aid to successful nursing On the other hand, the mother who cannot nurse her baby, especially the primipara over 30 years old, should not be made to feel that she has failed as a mother

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ORGANIZATION SECTION

1956 PUBLIC RELATIONS INSTITUTE

Drake Hotel, Chicago
August 29 and August 30, 1956

The Public Relations Institute is presented by the American Medical Association as a service to state and county medical societies It is open to representatives of these societies and their auxiliaries, to medical school public relations personnel, and to others working in the field of medical public relations

PROGRAM

Wednesday, August 29

REGISTRATION

8 30 a m, French Room Foyer

OPENING OF EXHIBITS

9 a m, French Room

Health education exhibits and public relations aids available from the American Medical Association will be on display

SYMPOSIUM LOCAL SCIENCE FAIRS

9 30 a m, Ballroom

Chairman John E Farrell, Executive Secretary, Rhode Island Medical Society

The Science Fair Movement and the National Science Fair
Joseph H Kraus, Coordinator, National Science Fair

Medical Society Participation on a Statewide Basis
James G Burch, Director of Public Relations, Connecticut State Medical Society

Medical Society Participation on a County and Regional Basis
Ralph Eades, M D, Past-President, Porter County (Indiana) Medical Society

Questions and Discussion

BRIEFING THE MEDICAL SOCIETY NEWCOMER

10 30 a m, Ballroom

Chairman Hugh W Brenneman, Public Relations Counsel, Michigan State Medical Society

How Our State Does It
Edward Clancy, Director of Public Relations, California Medical Association
John W Pompelli, Executive Assistant, Colorado State Medical Society

How Our County Does It
Millard J Heath, Executive Secretary, Dallas County (Texas) Medical Society
Harry A Lehman, Executive Secretary, Jefferson County (Louisville, Ky) Medical Society

Questions and Discussion

PREMIERE SHOWING: "THE CASE OF THE DOUBTING DOCTOR"

11:30 a.m, Ballroom

The American Medical Association presents a new membership indoctrination film for use by local and state societies

LUNCHEON

12 15 p.m, Walton Room

Chairman Percy E Hopkins, M D, Chairman, Committee on Public Relations and Medical Service, Illinois State Medical Society

Communicating Through Effective Speaking
David C Phillips, Head, Department of Speech and Drama, University of Connecticut

NEW PROJECTS FOR BETTER PR

2 p m, Ballroom

Chairmen C Lincoln Williston, Executive Secretary, Texas Medical Association, Richard G Layton, Assistant Executive Secretary, Oregon State Medical Society

Newspaper Advertising Series
J Robert Hudson, M D, Chairman, Public Relations Committee, Academy of Medicine of Cincinnati

Improving Doctor-Lawyer Relationships
Harold Bowman, Executive Secretary, Utah State Medical Association

PR Potential of Medical Detail Men
Richard Graham, Executive Secretary, Oklahoma State Medical Association

Working with the Medical School
Jesse H Ford, Jr, Public Service Director, Tennessee State Medical Association

Promoting the Opening of a New Headquarters
Rowland B Kennedy, Executive Secretary, Mississippi State Medical Association

A Society-Sponsored Safety Program
John R Rodger, M D, Chairman, Study of Prevention of Highway Accidents Committee, Michigan State Medical Society

Premiere Showing "On Impact"
New A M A-Ford Motor Company film on medicine's role in prevention of auto crash injury

Medical Society Representation in Health Organizations
Ralph R Marshall, *Executive Secretary, New Mexico* Medical Society

Planning a Centennial Celebration
Edward F Willenborg, Executive Secretary, Academy of Medicine of Cincinnati

PR Value of Lay Awards
William B Harlan, Staff Secretary, Medical Society of the State of Pennsylvania

A Poison Control Program
William K Scheuber, Executive Secretary, Alameda-Contra Costa County (California) Medical Association

Pre-Med Day for High School Students
Ray McIntire, Field Secretary, Missouri State Medical Association

Public Relations and Rural Health
W Wyan Washburn, M D, Chairman, Committee on Rural Health and Education, *Medical Society of the State of North Carolina*

New Looks at School Health
Earl R Thayer, Assistant Secretary, State Medical Society of Wisconsin
Hart F Page, Assistant Director of Public Relations, Ohio State Medical Association

Profiting from a Doctor Distribution Survey
William M Crawford, M D, Chairman, Committee on Public Relations, Texas Medical Association

Manning Health Exhibits
Les Adams, *Executive Secretary, Memphis and Shelby* Counties (Tennessee) Medical Society

RECEPTION FOR REGISTRANTS

5:30 p.m, Walton Room

Thursday, August 30

PUBLIC RELATIONS IN LEGISLATION

9 15 a.m, Ballroom

Chairman George H Saville, Assistant Executive Secretary, Ohio State Medical Association

Keeping on Top of Routine Legislation
W Harold Parham, Public Relations Supervisor, Florida Medical Association
Walter L Portteus, M D, Past-President, Indiana State Medical Association
John F Kiser, Assistant Executive Secretary, Medical Association of Georgia

Blueprints for Specific Campaigns
Trouble in Visalia
Glenn W Gillette, Associate Director of Public Relations, California Medical *Association*
Chiropractic Legislation
Martin J Tracey, Field Representative, Medical Society of the State of New York

Repealing Naturopathic License Law
M L Meadors Executive Secretary, South Carolina Medical Association

SYMPOSIUM A LOOK INTO THE PR FUTURE
Chairman Leo E Brown Director of Public Relations American Medical Association
From the National Point of View
Ernest B Howard M D , Assistant Secretary, American Medical Association
From the State Society Point of View
Lester H Perry Executive Secretary, Medical Society of the State of Pennsylvania
Donald L Taylor Executive Secretary, Iowa State Medical Society
From the County Society Point of View
Steve Yates, Executive Secretary Jefferson County (Birmingham, Ala) Medical Society
Harold N Howell, Executive Secretary, Medical Societies of the Counties of Oneida Herkimer and Madison (New York)

LUNCHEON SESSION
12 30 p.m , Walton Room
Chairman Stephen T Donohue, Assistant Director Department of Public Relations, American Medical Association
The Medical Profession and Network Television
Robert W Gentry, M.D , Los Angeles, Chairman, Physicians Advisory Committee on Television, Radio, and Motion Pictures, American Medical Association

RADIO TELEVISION WORKSHOP ON LOCAL PROGRAMMING
(Presented by representatives of a medical society radio-television study group in conjunction with the Public Relations Institute)
2 p m., Ballroom
Chairman James R Fox, M D, Radio-TV Coordinator, Minnesota State Medical Association
Initiating a Radio or Television Health Series
James H Gosman M D , Chairman, Public Relations Committee Indianapolis Medical Society
Production Plans and Source Material
In Radio Shows
John C Kadonsky, Public Relations Manager, Medical Society of Milwaukee County
In Television Shows
John F Rineman, Staff Assistant, Medical Society of the State of Pennsylvania
Putting the Show on the Air
Radio Programs
Sheldon Goldstein, Director of Radio-Television, Station KUOM, University of Minnesota
Some Examples of Successful Shows
Robert C Parkin, M.D , Assistant to the Dean, University of Wisconsin Medical School
Television Programs
Warren Bush, Director, Television Station WXIX, Milwaukee
Kinescope Examples of Local Programming
Reviewer Ray Stewart, Director of Public Relations, Iowa State Medical Society
Questions and Discussion

ADJOURNMENT
5 p.m.

FEDERAL MEDICAL LEGISLATION

Second Session, 84th Congress

Grants for Studies and Projects for Aged

Senators Hill (D , Ala) and Kennedy (D , Mass), in S 4117, "would authorize Federal grants to assist in the development and operation of studies and projects to help older persons " This is similar to eight measures previously reported but does not specify that there should be a Bureau of Older Persons in the Department of Health, Education, and Welfare The appropriation authorization is definitely larger This measure was referred to the Committee on Labor and Public Welfare

World Health Assembly

Senator Humphrey (D , Minn), in S J Res 183, and Congressman Judd (R , Minn), in H J Res 659, would authorize an appropriation of $400,000 "to enable the United States to extend an invitation to the World Health Organization to hold the Eleventh World Health Assembly in the United States in 1958 " These measures were referred to the respective committees on foreign relations

Medical Expense Tax Deductions

Congressman Miller (R , Md), in H R 11956, proposes to increase medical expense deductions in computing income tax for a taxpayer who has attained the age of 65 and is disabled and whose spouse has attained the age of 65 and is disabled Under the present law, a taxpayer over 65 years of age may deduct medical expenses up to $2,500 for himself and a like amount for each of his exceptions up to a total deduction of $10,000 Representative Miller would permit the deduction of up to $20,000 if the taxpayer and his spouse have attained the age of 65, provided both the taxpayer and his spouse are disabled This bill was referred to the Ways and Means Committee

Public Assistance Appeals Procedure

Congressman Elliott (D , Ala), in H R 11989, proposes "to amend the public assistance provisions of the Social Security Act to provide that any individual aggrieved by the action of a State agency with respect to his claim for assistance shall be entitled to judicial review thereof in an appropriate State court." All four categories of public assistance are covered in the proposed bill—old age assistance, aid to dependent children, aid to the blind, and aid to the permanently and totally disabled This bill was referred to the Ways and Means Committee

Contributory Health Insurance for Federal Employees

Congressman Thompson (D , N J), in H R 12005, proposes to provide for government contribution toward voluntary basic health insurance for federal employees and to authorize payroll deductions for the participants The federal government would contribute one-half of the premium not to exceed $1 50 biweekly, if the employee has coverage for himself alone, or $4 biweekly, if the employee has coverage for one or more dependents The federal government would continue contributing toward the cost of health insurance for retired employees not to exceed $2 25 biweekly, for a retired employee, and not more than $6 biweekly, if the employee has one or more dependents This bill was referred to the Post Office and Civil Service Committee

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From the Washington Office of the American Medical Association

MEDICAL NEWS

CALIFORNIA

Medical Tour of Soviet Union —The California Medical Association will sponsor an official centennial tour of the Soviet Union and Europe, with departure from San Francisco and Los Angeles scheduled for Oct 2 and return on Nov 1 via Trans World Airlines The tour will feature a four-day stopover in Paris en route to Helsinki in Finland and Leningrad and Moscow in the U S S R , where meetings will be held with Russian physicians and other scientists The group will return via Vienna, Austria, Rome, Italy, Madrid, Spain, and Lisbon, Portugal

Information Meetings for Relatives of Mental Patients —The State Department of Mental Hygiene and the San Francisco Mental Health Society are holding open discussions every Tuesday night, 7 30-9 p m at the San Francisco Mental Health Society office, 998 Eddy St The meetings, led by a psychiatric social worker from the department of mental hygiene, cover pertinent information on the state hospital program, such as cost of care, visiting hours, and hospital policies and routines, as well as the type of patient cared for, treatment offered, and follow-up program after the patient leaves the state hospital The groups are small and informal and offer ample opportunity for free discussion of questions There is no charge For further information, telephone Mrs Joan Murray, San Francisco Mental Health Society, PRospect 6-4133

DISTRICT OF COLUMBIA

Society News —At the annual meeting of the Association of Former Internes and Residents of Freedmen's Hospital in Washington, D C , Dr Robert S Jason, dean and professor of pathology at the Howard University College of Medicine, Washington, D C, was installed as president Dr Jason has served the association for 20 years as secretary and assistant secretary Guest speakers included Drs Samuel A Cosgrove, clinical professor of obstetrics, Columbia University, New York, John P Caffey, Babies Hospital, New York, George E Blackman, Roswell Park Memorial Institute, Buffalo, Robert A Hingson, professor of anesthesiology, Western Reserve University School of Medicine, Cleveland, and Mark M Ravitch, Baltimore City Hospital, Baltimore

ILLINOIS

Grants for Mental Health Education —Dr Otto L Bettag, Chicago, director of the Illinois Department of Public Welfare, recently announced the allocation of $559,280 to 26 agencies in the state for mental health education and community services for the fiscal year starting July 1 About 75% of these funds come from payments made under provisions of the Illinois Mental Health Code for care and treatment of patients in state mental hospitals and the remainder from federal mental health funds allocated to Illinois Grants totaling $478,980 to 20 community mental health clinics throughout the state are included The remaining funds were granted to six agencies carrying on mental health education programs and demonstration projects and providing professional training for staff personnel The welfare department itself has an allotment of $15,800 in federal funds for training

Chicago

Exhibit on Peacetime Uses of Atomic Energy —An exhibit on the peacetime uses of atomic energy, "Atoms for Peace," was recently opened to the public at the Museum of Science and Industry, E 57th Street and South Shore Drive Assembled by the U S Atomic Energy Commission in cooperation with private American companies and organizations, this exhibit was especially prepared for the 1,400 atomic scientists from 72 nations who attended the International Conference on the Peaceful Uses of Atomic Energy in Geneva, Switzerland, 1955 It covers the major phases of the peaceful uses of atomic energy with models, demonstrations, instruments and devices, photographic transparencies, machines, and many actual atomic materials and elements The exhibit includes medical instruments and instrument components, medical uses of atomic energy, industrial uses of radioisotopes, atomic preservation of foods experiments in biology, and a demonstration of the naturally occurring radiation that constantly bombards the human body How atomic materials are physically handled without danger is demonstrated by a mechanical manipulation operated by remote control The museum is open every weekday from 9 30 a m to 5 30 p m Closing time on Sundays and holidays is 7 p m There is no admission charge to the museum or to the Atoms for Peace exhibit

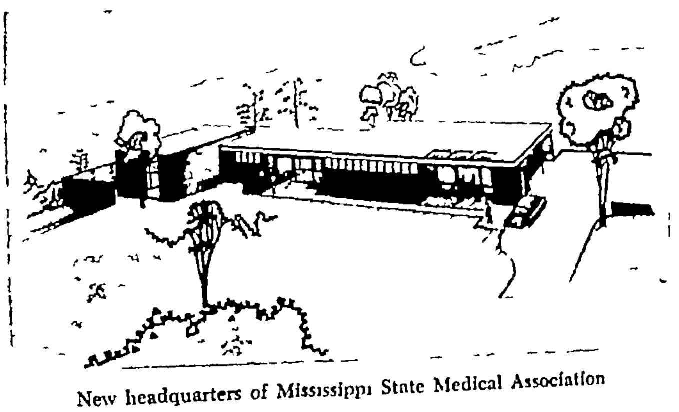
Society News —The Chicago Urological Society recently elected Dr Knowlton E Barber, president, Dr J Lester Wilkey, vice president, and Dr Don E Murray, secretary-treasurer —Newly elected officers of the Metropolitan Dermatological Society of Chicago include Dr James J Barrock, Milwaukee, president, Dr Cleveland J White, vice-president, and Dr Tibor Benedek secretary-treasurer —Newly elected officers of the Chicago Gynecological Society include Dr Ronald R Greene, president, Dr Abraham F Lash, president-elect Dr Charles Fields, vice president, Dr Robert A Beebe, treasurer, and Dr Clyde J Geiger, secretary

MINNESOTA

Retirement of Dr Woltman —*Dr Henry W Woltman*, who has served as Chairman of the A M A Section on Nervous and Mental Diseases (1934) and as Secretary of the section (1931, 1932, and 1933), retired on July 1, after 37 years as a member of the staff of the Mayo Clinic, Rochester, on which he has been professor of neurology since 1931

MISSISSIPPI

State Medical Headquarters —At the centennial annual meeting in Jackson, the Mississippi State Medical Association dedicated and officially opened its first permanent home, the association's Central Office Headquarters Building at 735 Riverside Dr In addition to ample office space, the building provides a 30 ft conference room Offices are connected with an intercommunication system and a centrally located electronic dictation system that operates through telephone instruments Dr S Lamar Bailey, Kosciusko, the association's 1955-1956 president, delivered the dedication address, declaring that " this building is more than a structure of masonry and steel It is a lasting symbol of service, a tangible reminder of your doctor s dedication to you, not a monument, but a beacon which says every minute of the day and night that this is medicine in Mississippi—this is a symbol of service " In the dedicatory address, Dr Bailey made reference to Solomon at the dedication of the Temple when he



New headquarters of Mississippi State Medical Association

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting said, I have surely built Thee an house to dwell in a settled place for Thee to abide forever Dr Guy T Vise, Meridian chairman of the association s council, presided as master of ceremonies Drs James Grant Thompson, Jackson, Stanley A Hill, Corinth and Louie T Carl, Jackson, constituted the building committee Dr Bailey and Dr Elmer Hess, Erie, Pa , then President of the American Medical Association, jointly cut the ribbon with gold suture scissors made especially for the occasion Other distinguished guests included Dr George F Lull, Chicago, A M A Secretary-General Manager, Dr W Raymond McKenzie, Baltimore, president, Southern Medical Association and Dr Arnold S Jackson Madison, Wis , president, International College of Surgeons

NEW YORK

War Memorial Fund —The Medical Society of the State of New York recently announced that the annual tuition awards under the War Memorial fund have been increased from $600 to $900 The War Memorial, which provides up to eight years of college and postgraduate education has already benefited 27 of the children of the 25 members of the Medical Society of the State of New York who died in military service during World War II and the Korean war It is estimated that 70 sons and daughters of these men will have become eligible for these grants by the year 1974, when the fund will have fulfilled its obligations

University News —The State University of New York College of Medicine at New York City, Brooklyn, has promoted from assistant professor to associate professor the following full-time faculty members Dr Irwin M Murray and Jerome P Parnell, Ph D (anatomy department) Dr John D Elder Jr (department of anesthesiology) Drs J Leonard Brandt, Jacob Colsky and Herbert C Lichtman (department of medicine) Dr Solomon A Kaplan (department of pediatrics) and Dr Melvin M Newman (department of surgery) The following faculty members were promoted from instructor to assistant professor Dr Arlene R Seaman (department of anatomy) Evelyn M Witkin Ph D (department of medicine) Drs Harold R Cottle and Philip H Prose (department of pathology) Dr Hugh M Cardullo (department of pediatrics), Dr Frederick F Kao (department of physiology) Drs James L Curtis and Gerald Freiman (department of psychiatry) Drs William Richardson and Jackson H Stuckey (department of surgery) and Dr Sidney R Weinberg (division of urology)

Personal —Dr George E B Blackman, cancer research specialist on the senior staff of the Roswell Park Memorial Institute has been honored by the Urban League of Buffalo for "outstanding achievement in community affairs Dr Blackman received the Professional Achievement award for his work in surgery and research at Roswell Park at the league s annual dinner —Dr Felix Marti Ibáñez, associate editor of *Antibiotic Medicine & Clinical Therapy* and international editor of *Antibiotics & Chemotherapy* has been appointed professor of the history of medicine and director of the newly established history of medicine department at the New York Medical College Flower and Fifth Avenue Hospitals Dr Marti Ibañez is also editor of the *International Record of Medicine* and international editor of the *Journal of Clinical and Experimental Psychopathology* Before coming to the United States in 1939 he practiced psychiatry in Barcelona Spain and taught medical history —Dr Ray K Brown who has been serving provisionally as assistant director for biochemistry and immunology in the division of laboratories and research, New York State Department of Health, Albany has received permanent appointment to that position

New York City

Institutes on Care of Premature Infants —Institutes for physicians and nurses on the care of premature infants have been scheduled for Sept 17 and Nov 5, 1956 and Jan 14 1957 at the New York Hospital-Cornell Medical Center under the sponsorship of the New York Department of Health and the United States Children s Bureau Attendance at each institute is limited to six physician nurse teams The program for physicians is of two weeks duration and that for nurses four weeks Participants pay no tuition fee and stipends are provided to help cover expenses If the number of applicants warrants fourth and fifth institutes will be scheduled beginning March 11 and in early May, 1957 Additional information may be obtained from Box 143, Institute in the Care of Premature Infants, New York Hospital, 525 E 68th St , New York 21

University News —At the 97th commencement exercise of New York Medical College, Flower and Fifth Avenue Hospitals, gold diplomas were awarded to the following graduates of the class of 1906 Drs Sprague Carleton and A Girard Cranch of New York City, Dr Alfred C Emmel, Mount Vernon N Y , Dr Frank S Jameson, Hadden Heights, N J Dr Norman D Mattison, Montclair, N J , Dr Rupert S Day, New Milford, Conn , Dr Judson G Cottrell, Perth Amboy, N J , Dr Harry C Dumville, Niagara Falls N Y , Dr George H Ding, Orleans, Mass , Dr William McLean, Durham, N C , and Dr John H Young, Pinehurst, N C

OHIO

Health Commissioner Positions —The Ohio Department of Health announces the availability of several health commissioner positions for physicians Information regarding locations, salary, and duties may be obtained from Mr E A. Graber, Bureau of Local Services Ohio Department of Health, 306 Ohio Departments Bldg Columbus 15, Ohio, phone CA 1-1265, ext 341

Course in Industrial Medicine —If there is sufficient demand, the Institute of Industrial Health, University of Cincinnati College of Medicine, will present a course in industrial medicine for physicians of Cincinnati and vicinity during the second academic semester (two hours a week for 16 weeks or three hours a week for 11 weeks) The course will deal with the medical aspects of the industrial environment, recognition of hazards, treatment of industrial diseases, role and place of a plant medical department in an industrial organization and the better use of community health resources, industrial psychiatry and communication The course (tuition fee $75) will be accepted by the Academy of General Practice for category 1 credit hour for hour

PENNSYLVANIA

Health Conference —The fifth annual Health Conference will be sponsored at the Pennsylvania State University, University Park, Aug 20 23, by the Medical Society of the State of Pennsylvania Pennsylvania Public Health Association, Pennsylvania Health Council, and the state department of health In developing the conference theme, "Personal Responsibilities in Public Health, 'Today and Tomorrow in Public Health" will be considered Tuesday morning by the heads of the four sponsoring organizations Other topics to be discussed include "Health Education, "Contributions to Community Health Environment and Chronic Illness, and Community Health Studies "

Philadelphia

Dr Kolmer Feted —A group of friends colleagues, assistants, and former students of Dr John A Kolmer honored him on his 70th birthday April 25 at the Alden Park Manor Addresses were made by Dr William N Parkinson, dean, Earle H Spaulding Ph D , professor of microbiology Dr Louis Tuft, and others of the Temple University School of Medicine and by Father John Curran, O S A Among the physicians attending were Drs Frank W Konzelmann, Washington, D C , W Wayne Babcock, Claude P Brown, Carroll S Wright, S Brandt Rose, J Rudolph Jaeger, and Edward Weiss Dr Charles Weiss, head of the department of microbiology at the Albert Einstein Medical Center a former student and research associate of Dr Kolmer, who served as master of ceremonies, said, in part Much as one would like to dwell on your scientific achievements it is more fitting in this age of anguish and anxiety to emphasize the influence which you have exerted on the personal lives and happiness of your students associates and colleagues " Dr Kolmer was presented with three volumes containing letters of greetings from his former research associates in Japan and from others in various parts of the United States

WASHINGTON

Merrill Shaw Memorial Fund —A revolving loan fund to aid undergraduate students who plan to become general practitioners has been set up at the University of Washington School of Medicine, Seattle, by the Washington Academy of General Practice in honor of the late Dr Merrill Shaw of Seattle Dr Shaw had served as vice-president of the American Academy of General Practice and as a member of the board of directors He was an organizer, charter member and first president of the King County chapter and Washington Academy of General Practice A gift of $1,000, presented as a nucleus, will be augmented by annual contributions from the Washington academy and, it is anticipated, by individual contributions A goal of a $10,000 revolving, self-perpetuating fund has been set by the academy

WEST VIRGINIA

State Medical Meeting —The 89th annual meeting of the West Virginia State Medical Association will convene at the Greenbrier, White Sulphur Springs, Aug 23-25, under the presidency of Dr Athey R Lutz, Parkersburg Dr Dwight H Murray, Napa, Calif, President of the American Medical Association will address the House of Delegates Saturday at 3 30 p m His subject will be "Federal Legislation and How It Affects the Medical Profession" Wednesday evening, Aug 22, will be devoted to an open medicolegal meeting, moderated by Dr William L Cooke, Charleston A panel discussion and question-and-answer period will follow addresses by former Governor Homer A Holt, Charleston, and Dr Walter E Vest, Huntington, on problems of mutual interest to the members of the legal and medical professions, including malpractice and testimony in court Motion pictures will be shown daily at 8 30 p m Thursday morning Dr Carl B Hall, Charleston, will serve as moderator for the following symposium on rehabilitation

Hope in Rehabilitation Donald A Covalt, New York City

Rehabilitation of the Cardiac Patient Bernard J Walsh Washington, D C

Rehabilitation of the Mental Patient, O Spurgeon English Philadelphia

A panel discussion including a question-and-answer period, with the moderator in charge, will conclude almost all scientific sessions Thursday afternoon a symposium on exceptional children will have as moderator Dr Hiram W Davis, Huntington and as speakers Dr Sarah L C Stevens, Huntington, Miss Frances A Scott, Charleston, Drs Covalt, Walsh, and English and Dr Paul Gyorgy, Philadelphia Cocktail hours, 6-7 p m, have been arranged by the West Virginia chapter, Medical College of Virginia Alumni Association, and by Duke University School of Medicine Alumni, preceding the annual address of the president at 9 p m Friday morning will be devoted to the following symposium on obstetrics and gynecology with Dr Richard W Corbitt, Parkersburg, as moderator

Surgical Problems of the Female Pelvis, Virgil S Counseller Rochester, Minn

Common Complications of Obstetrics F Bayard Carter Durham N C

Endocrine Problems of the Adult Female Robert B Greenblatt, Augusta Ga

Friday afternoon at 2 p m the West Virginia Society of Anesthesiologists will have as guest speaker Mr William R Huff, executive secretary, West Virginia Hospital Association, whose subject will be "The Hospital Administrator" At the same time an open meeting, section on internal medicine, West Virginia Diabetes Association, and West Virginia Heart Association, will hear "The Office Treatment of Anxiety States" by Dr English, "Some Errors in the Diagnosis of Heart and Vascular Disease" by Dr Walsh, and "Lupus Erythematosus" by Dr Clarence S Livingood, Detroit At 2 p m also the West Virginia Obstetrical and Gynecological Society will have Dr Carter as guest speaker At 3 30 p m the Catholic physicians practicing in West Virginia will be addressed by the Rev John J Flanagan, S J, executive director, Catholic Hospital Association, St Louis Scheduled for Friday evening are a cocktail party, University of Maryland School of Medicine Alumni (6 30-7 30 p m), entertainment by the woman's auxiliary (10 p m), and dancing in the ballroom At the third general session, Saturday morning, "Commonly Missed Diagnoses in Skin Diseases" will be discussed by Dr Livingood, "Factors Influencing the Spread of Cancer" by Dr George Crile Jr, Cleveland, 'Recent Advances in the Therapy of Diseases of the Chest" by Dr Sol Katz, Washington, D C Dr George F Evans, Clarksburg, will be the moderator At 1 30 p m Saturday the section on industrial medicine and public health will have as guest speaker Mr Henry N Doyle assistant chief, Occupational Health Division, U S Public Health Service, Washington, D C, who will present "Emerging Industrial Problems" At the same time the West Virginia Academy of Ophthalmology and Otolaryngology will hold a symposium on the eye, ear, nose, and throat A joint meeting of the section on radiology, the West Virginia Society of Anesthesiologists, and the West Virginia Association of Pathologists has been scheduled for 2 p m to discuss the corporate practice of medicine in West Virginia and its ramifications in the light of the opinion of the attorney general on the subject The West Virginia Pediatric Society will hear Dr Gyorgy consider "Trends and Advances in Infant Nutrition," and the section on surgery will have as speaker Dr Crile, whose subject will be 'That Controversial Thyroid Nodule' Dr and Mrs Lutz will entertain members of the state medical association, auxiliary, and guests at a cocktail party at the Auditorium Terrace, 6 30-7 30 p m There will be dancing in the ballroom at 10 p m

Personal —Dr John Bankhead Banks of Charleston was elected president of the University of Virginia Medical Alumni Association at the meeting in Charlottesville early in June —The following members of the West Virginia State Medical Association were recently elected to honorary life membership Drs Grover C Morrison, Huntington, Cecil C Jarvis, Clarksburg, and Marshall W Sinclair, Bluefield, and Drs Gustavus B Capito Henry M Escue, and Ritchie A Ireland, all of Charleston —Dr George M Lyon, who recently became manager of the Veterans Administration hospital at Huntington, received from his alma mater, Denison University at Granville, Ohio, the honorary degree of doctor of science at the 125th annual commencement, June 11 Dr Lyon's researches in 1940, relating to the use of drugs in the treatment of acute bacillary dysentery under the supervision of the National Research Council, resulted in the control of this disease by the British forces in the Middle East during 1941-1942

GENERAL

Symposium on Hemophilia —The National Hemophilia Foundation will present an International Symposium on Hemophilia at the Ambassador Hotel, Park Avenue at 51st Street, New York, Aug 24-25 The tentative program includes the following presentations by foreign participants

Surgical Treatment of Complications in Hemophilia, Erwin Deutsch I Medizinische Universitat Klinik Vienna Austria

Thromboelastography in Diagnosis and Management of Hemophilia Pietro de Nicola University of Pavia Italy

Parahemophilia (Prothrombin Accelerator Deficiency) Occurrence and Biochemistry P Fantl Baker Medical Research Institute Melbourne Australia

Insufficiency of Hemostasis in Hemophilia Fritz Koller Krankenanstalt Neumunster Zurich Switzerland

Relationship of Hemophilia C (Rosenthal) and Hemophilia D (Spaet) Jean-Pierre Soulier Centre National de Transfusion Sanguine Paris France (or Standardization and Tests of Activity of Antihemophilic Factors Used in Therapy)

The Marriage Problem and Descendants of Hemophiliacs Alfredo Pavlovsky Buenos Aires Argentina

Isolation Stability, and Assay of Antihemophilic Factor in the Thromboplastin Generation Test A Wintersteın Basel Switzerland

Anticoagulant Excess as a Cause of the Clotting Defect in Hemophilia Marc Verstraete, Louvain Belgium (New York Hospital)

For further information concerning the symposium, contact Dr Martin C Rosenthal, National Hemophilia Foundation, 175 Fifth Ave, New York 10

Biological Photographers —The 26th annual meeting of the Biological Photographic Association will be held Aug 27-31 in the Powers Hotel, Rochester, N Y The association, composed of scientific photographers concerned with the techniques and applications of photography in medicine, zoology, botany, and related fields, serves universities, medical schools, and hospitals On Monday at a special daylong workshop on recent developments in materials and processes for color photography, lectures and demonstrations will be adapted to the limitations of the average medical or biological laboratory The annual awards banquet will be held Thursday evening Tours have been scheduled through the 550-acre Kodak Park Works of the Eastman Kodak Company and also the Bausch & Lomb Optical Company, with alternate tours through the medical photographic departments of the University of Rochester School of Medicine and Dentistry and the Rochester General Hospital

Prevalence of Poliomyelitis—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	July 21 1956		July 23 1955
	Paralytic Type	Total Cases Reported	Total
New England States			
Maine			5
New Hampshire			9
Vermont	1	1	1
Massachusetts	1	2	146
Rhode Island			4
Connecticut	1	1	20
Middle Atlantic States			
New York	9	20	42
New Jersey	1	4	12
Pennsylvania		5	12
East North Central States			
Ohio	8	17	35
Indiana	2	10	15
Illinois	42	80	19
Michigan	6	10	36
Wisconsin	7	11	40
West North Central States			
Minnesota	1	1	15
Iowa	3	20	24
Missouri	9	19	10
North Dakota			1
South Dakota			
Nebraska	2	8	16
Kansas	3	7	6
South Atlantic States			
Delaware			1
Maryland	4	4	5
District of Columbia			5
Virginia	3	4	18
West Virginia	2	6	4
North Carolina	2	7	10
South Carolina	2	6	14
Georgia	7	8	6
Florida	5	14	7
East South Central States			
Kentucky	2	7	13
Tennessee	1	3	7
Alabama	2	2	8
Mississippi	4	7	7
West South Central States			
Arkansas	3	8	6
Louisiana	48	60	20
Oklahoma	1	6	18
Texas	31	61	89
Mountain States			
Montana	2	3	
Idaho		5	7
Wyoming	1	1	8
Colorado	1	2	9
New Mexico		1	7
Arizona	3	7	1
Utah		6	
Nevada			4
Pacific States			
Washington	1	1	5
Oregon	2	5	9
California	61	88	59
Territories and Possessions			
Alaska	no report	no report	
Hawaii	1	3	2
Puerto Rico			2
Total	250	536	814

Postgraduate Medical Cruise—The University of Texas Postgraduate School of Medicine has arranged with the Harvey Travel Bureau, 2005 W Gray, Houston, for a postgraduate medical cruise to the Caribbean aboard the Antilles (French Line) The ship will leave from Galveston, Texas, Feb 8 and return to Galveston Feb 22, 1957 The ports of call include Port au Prince, Haiti, Kingston, Jamaica, Curacao, Netherlands West Indies, LaGuaira Venezuela, Cristobal, Panama, and Havana, Cuba Professors of surgery, internal medicine, pediatrics, cardiology, and obstetrics and gynecology will accompany the group Details of the cruise may be secured from Mr D Stuart Godwin Jr, Harvey Travel Bureau, 2005 W Gray, Houston, Texas

CORRECTIONS

Research Fellowships and Grants—Applications for postdoctoral research fellowships available July 1, 1957, will be received by the Life Insurance Medical Research fund until Oct. 15, 1956 (not Oct 1, as stated in the item entitled "Research Fellowships and Grants in The Journal, July 21, page 1171)

Cancer of Cervix.—In the Query and Minor Note entitled Cancer of Cervix," in The Journal, Aug 4, page 1431, the second sentence should have read, "Schmitz and his followers (*Am J Obst & Gynec* 68 494, 1954) use irradiation as the primary therapy and employ radical hysterectomy and pelvic lymphadenectomy when they have proof that the disease has recurred or persisted "

EXAMINATIONS AND LICENSURE

American Board of Dermatology *Oral* St. Louis Oct. 12-15 Final date for filing applications was April 1 Sec. Dr B M. Kesten, One Haven Ave New York 32

American Board of Internal Medicine *Written* Oct. 15 1956 Final date for filing application was May 1 *Oral Examinations in 1956* New York City Sept. 21-25 Final date for filing application was April 1 Exec. Sec., Dr William A Werrell, 1 West Main St. Madison 3 Wis

American Board of Neurological Surgery Examination given twice annually in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time Sec., Dr Leonard T Furlow Washington University School of Medicine St. Louis 10

American Board of Obstetrics and Gynecology *Part I* 1957 Applications for certification for the 1957 examinations are now being accepted Candidates making new application or requesting the reopening of an application must do so before Oct. 1 1956 Applications are to be accompanied by a list of hospital admissions *Written Part I* Various cities of the United States Canada and military centers outside the continental United States Feb 1 Dr Robert L Faulkner 2105 Adelbert Road Cleveland 6

American Board of Ophthalmology *Practical Examination* St. Louis Oct. 20-24. Written Jan 21 1957 Applications must be filed before July 1, 1956 Sec., Dr Merrill J King Box 236 Cape Cottage Branch Portland 9 Maine

American Board of Orthopaedic Surgery *Oral Part II* Chicago January 1957 Final date for filing application is Aug. 15 Sec. Dr Sam W Banks 116 South Michigan Ave., Chicago 3

American Board of Otolaryngology *Written and Oral* Chicago Oct. 8-11 Sec. Dr Dean M. Lierle, University Hospitals Iowa City

American Board of Pathology *Written for Pathological Anatomy and Clinical Pathology* Oct. 4-6 Final date for filing application is Sept. 1 Sec. Dr Edward B Smith 1040-1232 W Michigan St., Indianapolis 7

American Board of Pediatrics *Oral Part II* New York City Oct. 12-14 and San Francisco Dec. 7-9 Sec. Dr John McK. Mitchell, 6 Cushman Road Rosemont, Pa.

American Board of Plastic Surgery Miami Oct. 17-19 Corres Sec., Mrs Estelle E. Hillerich, 4647 Pershing Ave St. Louis 8

American Board of Preventive Medicine *Oral and Written Public Health* Philadelphia, Nov 8-10 Sec. Dr Ernest L. Stebbins, 615 N Wolfe St., Baltimore Md.

American Board of Proctology *Oral and Written* Philadelphia, Sept. 29 Final date for filing application was June 28 Sec. Dr Stuart T Ross 520 Franklin Ave., Garden City N Y

American Board of Psychiatry and Neurology *Oral* New York, Dec. 10-11 and New Orleans Mar 18-19 Sec., Dr David A. Boyd, Jr 102-110 Second Ave., S W., Rochester Minn

American Board of Radiology Los Angeles Sept. 30-Oct. 4 Final date for filing application was June 1 Sec., Dr B R. Kirklin Kahler Hotel Bldg Rochester Minn.

American Board of Surgery *Part I* Various Centers Throughout the United States and in Certain Military Centers Abroad, Oct. 31 *Part II* Buffalo Sept. 24-25 Chicago Oct. 15-16 New Haven, Nov 19-20 Kansas City Kan Dec. 10-11 Los Angeles, Jan. 14-15 San Francisco Jan. 17-18 Houston, Feb 18-19 Nashville Mar 11-12 Boston, April 8 9 and New York, June 10-11.

American Board of Urology February 1957 Sec. Dr William Niles Wishard, 1711 N Capital Ave., Indianapolis 7

Board of Thoracic Surgery *Written.* Various centers throughout the country Sept. 7 Final date for filing applications was July 1 A subsequent written examination will be held in February 1957 and the closing date for registration is Dec. 1 1956 Sec. Dr William M Tuttle, 1151 Taylor Ave Detroit 2

DEATHS

Merritt, Edward Lester ⊕ Fall River, Mass , born in Fall River in 1894, Tufts College Medical School, Boston, 1917, member of the House of Delegates of the American Medical Association in 1938-1939, past-president and secretary of the Fall River Medical Society, member of the board of censors and past-president of the Bristol South District, Massachusetts Medical Society, member of the Fall River Historical Society, member of the American Urological Association, Association of Military Surgeons of the United States, American Public Health Association, and the American Cancer Society, served as vice-president of the Massachusetts Society for Crippled Children, in 1948 appointed on the advisory council of the Massachusetts Department of Public Health and for many years was public health officer in the Fall River area, veteran of World Wars I and II, past-commander of the Bristol County Council, American Legion, and a former state executive committeeman of the Legion, past-commander of the Narragansett Bay Chapter of the Military Order of World Wars, on the staffs of the Union, St Anne's, and Fall River General hospitals, consultant at Newport (R I) Hospital and the Cape Cod Hospital in Hyannis, Mass , long active in the Boy Scouts, held the organization's Silver Beaver award, formerly member of the board of directors of the YMCA, past-president of the advisory board of the Salvation Army, past-president of the Fall River Chamber of Commerce and of the Fall River Rotarians, a past-governor of the 197th district, Rotary International, served as a member of the board of trustees of Tufts College, Boston, member of the Boston Medical Library, attending physician, Home for Aged People, medical director of the Wentworth Manufacturing Company, medical examiner for life insurance companies, died May 4, aged 62, of hypertensive heart disease

Kinney, Lyell Cary ⊕ San Diego, Calif , born in Johnstown, Wis , Sept. 5, 1884, University of Pennsylvania Department of Medicine, Philadelphia, 1908, after serving an internship at the German Hospital in Philadelphia, went to Los Angeles, where he was appointed radiologist at the California Lutheran Hospital, served as instructor in radiology at the University of Southern California School of Medicine in Los Angeles, veteran of World War I, one of the founders of the American Board of Radiology, member of the House of Delegates of the American Medical Association from 1932 to 1939 and from 1941 to 1943, past-president of the San Diego County Medical Society and president of the California Medical Association in 1930, past-president of the American Roentgen Ray Society, member and at one time vice-president of the American College of Radiology, member of the Radiological Society of North America and the American Radium Society, life member of the American College of Physicians, in 1931 initiated the formation of the cancer commission of the California Medical Association and served for several years as a member of the commission, from 1944 to 1948, was a director of the American Cancer Society and was instrumental in the establishment of the California division of that society, radiologist at Palomar Memorial Hospital in Escondido, died in Del Mar Feb 1, aged 71, of injuries sustained when struck by an automobile

Dixson, Ira ⊕ Denver, born in Buffalo, N Y , Sept 4, 1901, Harvard Medical School, Boston, 1928, certified by the National Board of Medical Examiners, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, member of the American Heart Association, the World Medical Association, and the American Diabetes Association, assistant clinical professor of medicine at the University of Colorado School of Medicine, Denver, served during World War II, on the staffs of the Denver General, Colorado General, and General Rose Memorial hospitals, founder of the Harvard University Medical Alumni Association, died in the Veterans Administration Hospital May 16, aged 54.

Newcomb, Kate Pelham ⊕ Woodruff, Wis , born in Wellington, Kan , in 1885, University of Buffalo School of Medicine, 1917, member of the American Academy of General Practice, her biography, 'Dr Kate Angel on Snowshoes,' by Adele Comandini was published in 1956, became nationally known when she appeared on a national television program, This Is Your Life in 1954, founder and chief of staff at Lakeland Memorial Hospital on the staffs of the Sacred Heart Hospital in Tomahawk, St Mary's Hospital in Rhinelander, and St Mary s Hospital in Wausau, where she died May 30, aged 70, following an operation for fracture of the hip received in a fall

Lanning, Charles Wesley, Herkimer, N Y , born in 1874, Syracuse (N Y) University College of Medicine, 1898, an associate member of the American Medical Association, past-president of the Otsego County Medical Society, for nine years Otsego County physician, formerly Tully physician and Onondaga County school commissioner, for many years practiced in Cooperstown, where he was on the staff of the Mary Imogene Bassett Hospital, on the staff of the Herkimer Memorial Hospital until his retirement in 1953, died in Richfield Springs April 18, aged 82, of generalized arteriosclerosis

Broadfield, John Augustus, Philadelphia, Jefferson Medical College of Philadelphia, 1906, an associate member of the American Medical Association, died in the Northeastern Hospital May 20, aged 74, of carcinoma of the pancreas

Close, John Burt, Mission, Texas, Ensworth Medical College, St Joseph, Mo , 1908, died in the Mission Municipal Hospital March 19, aged 76, of arteriosclerotic cardiovascular disease

Coe, Urling Campbell, Oswego, Ore , Eclectic Medical Institute, Cincinnati, 1904, at one time secretary of the board of medical examiners of the state of Oregon, author of "Frontier Doctor , died May 9, aged 74, of coronary insufficiency

Cohen, Nathan ⊕ Elmira, N Y , Syracuse University College of Medicine, 1917, for many years school physician, on the staffs of the Arnot-Ogden Memorial and St Joseph s hospitals, died May 3, aged 65, of leukemia

Conklin, Alice Iva ⊕ Dowagiac, Mich , Northwestern University Woman's Medical School, Chicago, 1897, fellow of the American College of Surgeons, in 1919 member of the House of Delegates of the American Medical Association, for many years on the staff of the Women and Children s Hospital in Chicago, died in the Lee Memorial Hospital May 16, aged 87, of heart disease

Coons, Samuel Gamble, Dry Run, Pa , Jefferson Medical College of Philadelphia, 1894, past-president of the Franklin County Medical Society, on the staff of the Chambersburg (Pa) Hospital, past-president and member of the board of directors of the Path Valley National Bank of Dry Run, died in Chambersburg April 1, aged 84, of coronary occlusion

Cope, John Quincy, Lexington, Mo , University Medical College of Kansas City, 1903, served as city health officer, honorary member of the staff of the Lexington Memorial Hospital, died in Columbia May 12, aged 86, of cerebral arteriosclerosis

Copeland, Edwin King ⊕ Woodland, Calif , University of Oklahoma School of Medicine, Oklahoma City, 1930, member of the American Academy of General Practice, served during World War II, past-president of the Lions Club, on the staffs of the Yolo General Hospital and the Woodland Clinic Hospital, where he died April 18, aged 56, of coronary thrombosis

Coppedge, Omer Clarence ⊕ Bristow, Okla , Barnes Medical College, St Louis, 1905, died in Oklahoma City April 6, aged 76, of myocardial infarction

Cordaro, Benjamin Joseph, Holbrook, Mass , College of Physicians and Surgeons, Boston, 1941, member of the Massachusetts Medical Society, from 1950 to 1952 served in the Army Medical Corps in Germany, school physician, on the staff of the Goddard Hospital in Brockton, died in Manchester, Conn , May 6, aged 41, of injuries received in an automobile accident

Corman, Morris David, Panorama City, Calif , University of Minnesota Medical School, Minneapolis, 1942, interned at Northwestern Hospital in Minneapolis, died April 20, aged 62, of myocardial infarction

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⊕ Indicates Member of the American Medical Association

Corwin, Benjamin Frank, Brooklyn N Y Yale University School of Medicine, New Haven Conn 1897 an associate member of the American Medical Association on the consulting staff of the Kings County Hospital Center died April 4, aged 85 of cardiac decompensation

Crabtree Hillborn C Lincoln Neb Lincoln (Neb) Medical College 1916 died March 11 aged 73 of coronary thrombosis

Crawford, William Barron ⊕ Savannah Ga Columbia University College of Physicians and Surgeons New York City 1899 at one time associated with the U S Public Health Service, member and past-president of the staff of St Joseph s Hospital served during World War I died April 17, aged 80 of coronary thrombosis

Crump, Walter Gray Jr ⊕ New York City New York Homeopathic Medical College and Flower Hospital New York City 1928 assistant clinical professor of surgery at the New York Medical College Flower and Fifth Avenue Hospitals fellow of the American College of Surgeons on the staff of the Metropolitan Hospital died May 9 aged 54 of a heart attack

Dale, Charles Dorsey, Atoka Okla Memphis (Tenn) Hospital Medical College 1904 past president of the Atoka-Bryan Coal Counties Medical Society died in the Hendrick Memorial Hospital Abilene Texas April 5, aged 76

Daniel, Frank Charlton ⊕ Pavo Ga Emory University School of Medicine Atlanta 1929 died April 12 aged 52 of myocarditis and rheumatic fever

DeMuth, Seth Ellis ⊕ Hicksville Ohio, Eclectic Medical Institute Cincinnati 1899 past-president of the Defiance County Medical Society died May 11, aged 80, of arteriosclerotic heart disease

Deutsch, Frederick, Euclid Ohio Medizinische Fakultät der Universitat, Vienna Austria 1924 member of the Ohio State Medical Association died March 31 aged 56 of coronary thrombosis myocardial infarction, and arteriosclerosis

Dinsmoor, Frank M ⊕ Keene, N H University of Pennsylvania Department of Medicine Philadelphia, 1893 served on the staff of the Elliot Community Hospital died March 7, aged 87 of myocarditis hypertrophy of the prostate arteriosclerosis and pneumonia.

Dixon, Ambrose ⊕ Hennessey Okla Gate City Medical College Dallas, Texas 1906 died April 11 aged 83, of myocarditis

Doody, William Malachi ⊕ Jersey City N J Fordham University School of Medicine, New York City, 1919 member of the American Psychiatric Association director of the diagnostic clinic at Hudson County Hospital for Mental Diseases at Secaucus died in the Jersey City Medical Center May 22 aged 61 of a heart attack.

Duffy, William Core, New Haven Conn Johns Hopkins University School of Medicine, Baltimore, 1914 formerly assistant clinical professor of surgery at Yale University School of Medicine, fellow of the American College of Surgeons served in France during World War I consultant at Griffin Hospital in Derby on the staff of the Grace-New Haven Community Hospital died May 4 aged 67

Edwards Conover, Estella Mae ⊕ Hyattsville, Md Bennett Medical College Chicago 1910 died in Bethesda April 28 aged 74

Egger, Ernst, Chicago Medizinische Fakultät der Universität Vienna, Austria, 1922 on the staff of the Illinois Masonic Hospital died in the Wesley Memorial Hospital June 2, aged 61 of lymphosarcoma

Emmons, Charles Wallace ⊕ Fairview Park, Ohio, University of Wooster Medical Department, Cleveland, 1906, member of the Cleveland Academy of Medicine, on the courtesy staff of Lakewood (Ohio) Hospital, where he died May 3 aged 73, of coronary thrombosis

Estabrook, John Wesley ⊕ Brandon, Vt., University of Vermont College of Medicine, Burlington, 1895, died April 6 aged 84, of coronary thrombosis

Feldman, Harold ⊕ Pekin, Ill , State University of Iowa College of Medicine Iowa City, 1932, member of the American Academy of General Practice, served during World War II associated with the Pekin Public Hospital and the Methodist and St Francis hospitals in Peoria, drowned in Carmel Calif , May 20 aged 50, while attempting to save a woman swimmer from drowning

Feldott, Harry Raymond ⊕ Hinsdale Ill Loyola University School of Medicine Chicago 1918 member of the American Academy of General Practice formerly associated with the Veterans Administration in Hines died May 27, aged 63

Foty, Saviour R , Oak Park Ill Jenner Medical College Chicago 1917 served on the staff of the West Suburban Hospital died May 9 aged 77 of coronary thrombosis

George, Joseph Cancianus, Pittsburgh College of Physicians and Surgeons Baltimore 1910 died April 9, aged 81

Gerhart, Margaret F Welsh ⊕ Mantua, N J Woman s Medical College of Pennsylvania Philadelphia, 1937 died April 7, aged 41 of coronary occlusion.

Giese, Charles Oscar ⊕ Colorado Springs Colo St Louis University School of Medicine St Louis 1905 first president of the American Academy of Tuberculosis Physicians past-president of the Colorado Tuberculosis Association, formerly director of the National Tuberculosis Association, member of the American Trudeau Society on the staffs of the *Memorial, Glockner-Penrose* and St Francis hospitals formerly medical director of the Modern Woodmen Sanatorium in Woodmen, died April 24 aged 80 of arteriosclerotic heart disease

Ginsburg, Jack Charles, San Francisco, Stanford University School of Medicine San Francisco, 1954 resident physician at the Veterans Administration Hospital, served during World War II died May 17 aged 30

Goodlove, Paul Corydon, Detroit, Detroit Homeopathic College, 1907 died April 13 aged 76, of cerebral hemorrhage

Goodman, James Monroe, Frederick Md Hahnemann Medical College and Hospital of Philadelphia 1902, an associate member of the American Medical Association served as city and county health officer died in the Frederick Memorial Hospital April 22 aged 82

Googe, George William ⊕ Rienzi Miss Kentucky University Medical Department, Louisville, 1903 on the staff of the Community Hospital Corinth, where he died May 24 aged 79, of mesentery cancer and ascites

Gracey, Robert Ralph, Abington, Pa , Hahnemann Medical College and Hospital of Philadelphia 1924 died May 9, aged 56

Graves, Amos Maverick ⊕ San Antonio Texas, Tulane University School of Medicine, New Orleans 1928 fellow of the American College of Surgeons veteran of World War I, on the staffs of Santa Rosa, Baptist Memorial, and Nix Memorial hospitals, died in the Nix Memorial Hospital April 6, aged 57, of heart disease and arteriosclerosis

Greene, Claude Dean, Spencer Ind Indiana University School of Medicine Indianapolis 1912 member of the Indiana State Medical Association served as county health officer, died May 6, aged 70, of carcinomatosis and carcinoma of the rectum

Greene, Inslee Blair ⊕ Everson, Wash , Johns Hopkins University School of Medicine, Baltimore, 1907 died in Bellingham May 11 aged 77, of arteriosclerotic heart disease

Grover, Orie I Messinger, Marion, Ind Chicago Homeopathic Medical College, 1883 the Hahnemann Medical College and Hospital Chicago, 1908 died in the Marion General Hospital Feb 3, aged 93, of cerebral vascular accident and arteriosclerotic heart disease

Guiberteau, George Rinehart ⊕ Jeanerette, La. Louisiana State University School of Medicine New Orleans, 1947 interned at Southern Baptist Hospital in New Orleans, died May 19, aged 32

Hackett, Thomas Edward ⊕ Jackson, Mich , University of Michigan Department of Medicine and Surgery, Ann Arbor 1911 veteran of World War I, for many years surgeon for the New York Central Railroad, on the staffs of the W A. Foote Memorial and Mercy hospitals, died April 11 aged 68, of coronary thrombosis

Hayes, Leslie Scott, Louisa, Ky., Kentucky School of Medicine, Louisville, 1908; served as mayor of Louisa; veteran of World War I; formerly secretary of the Lawrence County Medical Society; member of the county board of health; died April 22, aged 73, of carcinoma of the transverse colon.

Higbee, Paul Albert, Minneapolis; Hahnemann Medical College and Hospital of Philadelphia, 1900; died March 29, aged 82, of bronchopneumonia.

Hildreth, Robert Dudley, Westfield, Mass.; Harvard Medical School, Boston, 1908; member of the American Medical Association; medical examiner for Westfield State Teachers College; from 1914 to 1949 associate medical examiner for Hampden County; past-president of the Hampden County Medical Society; school physician; for many years on the staff of the Noble Hospital; died in Point Pleasant, N. J., April 20, aged 73, of heart disease and arteriosclerosis.

Hope, Paul Taylor, Mercer, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1901; an associate member of the American Medical Association; veteran of World War I; served as county coroner and jail physician; at one time superintendent of the Mercer Cottage Hospital; died April 7, aged 78, of coronary thrombosis.

Horn, John William ⊕ Lucedale, Miss.; Mississippi Medical College, Meridian, 1909; medical examiner for George County Draft Board during World War II; died May 2, aged 76, of pneumonia with complications.

Humphreys, David Granville ⊕ Fernandina Beach, Fla.; Hospital College of Medicine, Louisville, Ky., 1896; past-president of the Nassau County Medical Society; formerly associated with the U. S. Public Health Service; on the staff of Nassau General Hospital; died March 16, aged 83, of acute coronary thrombosis.

Hummons, Henry Lytle ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1902; died April 5, aged 83, of cerebral thrombosis and arteriosclerosis.

Hurd, Randolph Campbell ⊕ Newburyport, Mass.; Harvard Medical School, Boston, 1897; formerly medical examiner; served as president of the Historical Society of Old Newbury; on the staff of the Anna Jaques Hospital; died May 1, aged 83, of arteriosclerosis.

Johnson, Peter Joseph, Brooklyn, N. Y.; College of Physicians and Surgeons, Baltimore, 1903; served as assistant health officer of the Port of New York; formerly superintendent of the Sea View Hospital in Staten Island and the Cumberland Hospital; died April 8, aged 80, of arteriosclerotic heart disease.

Johnson, Willard Judd, Decatur, Ill.; St. Louis University School of Medicine, 1904; died in St. Mary's Hospital April 18, aged 81, of duodenal and marginal ulcers with stenosis.

Kagane, Nathan ⊕ New York City; Université de Geneve Faculte de Medecine, Switzerland, 1924; on the staff of the Beth Israel Hospital; died April 22, aged 63, of coronary thrombosis.

Kalcounos, William Nicholas ⊕ Pawtucket, R. I.; St. Louis University School of Medicine, 1939; interned at St. Mary's Group of Hospitals in St. Louis; twice president of the Pawtucket Medical Society; on the staff of the Memorial Hospital, where he died April 11, aged 43, of cerebral hemorrhage.

Katz, Joseph, Brooklyn, N. Y.; Long Island College Hospital, Brooklyn, 1914; at one time instructor in gastroenterology at the New York University Post-Graduate Medical School, New York City; on the staff of the Swedish Hospital; died March 19, aged 70, of acute coronary occlusion.

Kell, William Richard, Pascagoula, Miss.; Bellevue Hospital Medical College, New York City, 1890; formerly county health officer; died in the Jackson County Hospital April 24, aged 91.

Larrabee, Scott Goddard, St. Paul; Medical School of Maine, Portland, 1906; died April 2, aged 71.

Lawrence, Joseph Henry ⊕ Brockton, Mass.; Bellevue Hospital Medical College, New York City, 1892; veteran of World War I; formerly member of the city board of health; for many years on the staff of the Brockton Hospital; died in the Goddard Hospital April 19, aged 85.

Lebowske, Joseph Arthur ⊕ Minneapolis; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1904; died in the Mount Sinai Hospital April 1, aged 75, of cachexia and cerebral arteriosclerosis.

Lee, Linford Henry ⊕ Los Angeles; University of Nebraska College of Medicine, Omaha, 1921; member of the Association of Life Insurance Medical Directors of America, of which he was past-president; member of the American Heart Association; vice-president and medical director of the Pacific Mutual Life Insurance Company; died April 11, aged 60.

Lewis, Murney Edward, New York City; Columbia University College of Physicians and Surgeons, New York City, 1905; member of the Medical Society of the State of New York; veteran of World War I; on the staffs of the Bellevue, Lutheran and Woman's hospitals; died April 27, aged 74, of hypertensive arteriosclerotic heart disease.

Lichtenfels, Frederick Victor ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1912; formerly on the staff of the Eye and Ear Hospital; died May 6, aged 68, of coronary thrombosis.

Lieb, Charles Christian ⊕ New York City; Columbia University College of Physicians and Surgeons, New York City, 1906; Hosack professor of pharmacology emeritus at his alma mater; served as secretary of the Association of the Alumni, Columbia University College of Physicians and Surgeons; member of the British and American Physiological societies, the Society of Pharmacology and Experimental Therapeutics, and the Society of Experimental Biology and Medicine; died April 6, aged 75, of carcinoma of the lung.

Lindig, Hesser Charles Clapham ⊕ Glenside, Pa.; Temple University School of Medicine, Philadelphia, 1935; specialist certified by the American Board of Proctology; served during World War II; on the staffs of the Temple University Hospital in Philadelphia and the Abington (Pa.) Memorial Hospital, where he died April 11, aged 50, of carcinoma of the stomach and peritonitis.

McAlear, Lowell Eldred ⊕ Berkeley, Calif.; University of Oregon Medical School, Portland, 1935; on the staffs of the Peralta Hospital and Children's Hospital of the East Bay in Oakland, and the Alta Bates Community Hospital; died April 15, aged 46.

McCain, Gilpin Montieth, St. Cloud, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1912; died March 16, aged 70, of senility.

McClung, Anna Mae Henry, Pattonsburg, Mo.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1899; died in Bethany April 22, aged 77, of cancer.

McCue, Christopher, Goodells, Mich.; Trinity Medical College, Toronto, Canada, 1890; died in Saginaw March 25, aged 87, of arteriosclerotic heart disease.

McNary, William Duncan, Milwaukee; Rush Medical College, Chicago, 1896; died April 15, aged 85, of a fractured hip.

MacKellar, Harry Rex ⊕ Colonel, U. S. Army, retired, Vancouver, Wash.; Jefferson Medical College of Philadelphia, 1910; entered the Medical Corps of the U. S. Army in June, 1912; veteran of World War I; retired Jan. 31, 1943; died in Madigan Army Hospital, Tacoma, April 23, aged 77, of aneurysm.

Manning, Armas A. ⊕ Los Angeles; Detroit College of Medicine and Surgery, 1935; certified by the National Board of Medical Examiners; member of the Industrial Medical Association; died April 23, aged 49, of cerebral hemorrhage.

Montague, Laurence Joseph ⊕ Houston, Texas; University of Texas School of Medicine, Galveston, 1920; fellow of the American College of Surgeons; served on the staff of the Grandview Hospital in Edinburg; died March 18, aged 62, of coronary thrombosis and fracture of the hip.

Moreland, Edgar Wallace, Fort Wayne, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1904; died March 23, aged 90, of arteriosclerotic heart disease.

Wenzlick, George John, Davenport, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1901; died recently, aged 77, of coronary occlusion.

FOREIGN LETTERS

AUSTRIA

Carcinoma of the Lips —At the meeting of the Society of Physicians in Vienna on June 8, Dr K Wasserburger reported on three patients with carcinoma of the lower lip who had been treated 14 9, and 5 years earlier In all three patients the carcinoma was of the squamous cell type and all three remained free of symptoms Lymph nodes were palpable in all three when first examined and in two patients the lymph nodes showed chronic inflammation One patient had a spread of the carcinoma that was demonstrated when the lymph nodes were removed Radium therapy of carcinoma of the lower lip yielded good permanent results Reviewing the subject the speaker said local recurrences have been reported in 10% of the cases No deaths resulted from radium therapy There were complications in less than 1% Experience showed a definite drop in permanent results in patients with involvement of the regional lymph nodes and consequently resection en bloc was performed in every case Postoperative teleradium therapy was given, using 6 000 to 8 000 r This procedure was of limited value in (1) the 21% of the patients in whom fixed lymph node tumors were found on the first examination (2) patients of advanced age who therefore had a short life expectancy and (3) patients in poor general condition and those who had other severe diseases

It is difficult to decide in the individual case whether the enlarged lymph nodes are chronically inflamed or already changed by neoplasm In doubtful cases operation should be performed early to give the patient the best chance The operation should be performed before proliferation occurs through the capsule of the lymph node in the course of the transformation of the chronically inflamed submaxillary lymph node into a neoplastic node In order to prevent centripetal spread en bloc resection must be performed at once in carcinoma of the lip when a lymph node of the truncus jugularis is palpable in addition to a submaxillary lymph node Dr R Ullik emphasized the occurrence of irradiation-resistant carcinoma. In such cases the patients should be referred to the surgeon as soon as possible to avoid the necessity of resecting the inferior maxilla Dr J Tappeiner stated that smaller carcinomas of the lip may be excised and in larger tumors studding with radium needles with a low charge may be practiced in order to reduce the necrotic tissue break-down adjacent to the needles Studding permits adequate irradiation of the tumor without burdening of the cutaneous surface

Circulation in Athletes —At the same meeting Drs L Slapak and L Prokop reported that enlargement of the heart may be found relatively frequently but not universally in athletes It develops gradually in the course of years and depends on the type of sport in which the athlete is active The roentgenokymogram shows characteristic features in the heart of the athlete. In the area of the apex there may be either a lateral plateau formation or a silent zone instead of the normal sharp points The latter may reappear after the load had been removed In the electrocardiogram of well-trained athletes taken at rest a prolonged PQ interval, flattened T waves and a prolonged QT interval may be observed, depending mostly on a training vagotonia These changes may return to normal after exertion

It is the main task of the sports physician to determine in the described changes the borderline between normal and abnormal conditions, in order to recognize early damage and to prevent late severe lesions Erroneous diagnoses must be avoided so that normal persons do not become psychoneurotic Electrocardiograms and kymograms taken after exercise and repeated roentgenologic and electrocardiographic control examinations will clarify the observations in doubtful cases The prognosis of the athlete s heart is not unfavorable Continued control by a sports physician is necessary, and the responsible supervisors (parents, teachers or trainers) should receive adequate instructions The various cardiac function tests are an important aid in evaluating the athlete s condition Any standardized load placed on the heart may be used, but no single test satisfies all requirements Tests of this type can be used only for relative evaluation The most commonly used tests are the various knee-bending tests and modifications of the step test The evaluation of the pulse and blood pressure alone may be unreliable, because these values vary in a compensatory manner It is therefore advisable to use the products of pulse and blood pressure as is done in the so-called Vienna test. One unfavorable test is of very limited significance, because it may be the expression of a temporary disturbance or it may indicate a pathological change

Suicidal Attempt with Insulin —At the meeting of the Society of Physicians in Vienna on May 25, Dr B Konigstein reported on a 27-year-old man with diabetes mellitus who was being examined at the department for diseases of metabolism of the City Hospital in Vienna-Lainz and who gave himself an injection of 2 000 units of protamine zinc insulin in an attempt to commit suicide Since he had been observed when he gave himself the injection, he was admitted to the hospital without undue delay He was given large amounts of carbohydrates, cortisone epinephrine and levarterenol, and thus a harmful drop in the blood sugar level and the occurrence of hypoglycemic coma was prevented About 13 cases of suicidal attempts with insulin have been reported in the literature In these five persons died One patient had to be institutionalized because of cerebral disturbances that resulted from prolonged hypoglycemic coma and the remaining seven made a complete recovery

Summer Camp for Diabetic Children —At the same meeting Dr W Korp reported on the first Austrian summer camp for diabetic children, which was established in July 1955 in the International Culture Home in Vienna Horndlwald Only children with no serious developmental disturbances or complications were selected It is believed that through community life diabetic children may be freed of the feeling of inferiority that often develops when they are thrown with children who have a normal metabolism The speaker urged the establishment of homes for adult diabetics, as such homes have proved their value in other countries Through their use the hospital stay of diabetic patients can be shortened and the patients can get much better training than that given in the hospital or in the course of ambulatory treatment.

Histology of Bone —At the same meeting Dr W Lipp stated that bone undergoes changes by processes of transformation and renovation during the course of life These processes concern the organic and inorganic elements of the bone New microscopic and autoradiographic studies prove that depending on physiological conditions there is a direct relationship between the mineral content and the age of a bone an uncalcified, malleable osteoid is not formed normally osteomalacia cannot be demonstrated in the normal bone and, during the entire life, there is a continued exchange of the mineral contents The exchange of minerals occurs simultaneously with the processes of absorption and apposition but is partly independent of them Recent experimental studies confirm the concept that bones serve not only as supportive organs to the entire body but also as a storage organ for minerals

Regional Enteritis —At the meeting of the Society of Physicians of Vienna on June 1, Mrs I Obiditsch-Mayer reviewed the histological findings of the surgical specimen of a 13-year-old boy from whom a 40-cm loop of jejunum and a 40-cm loop of ileum were removed because of intractable regional enteritis The specimen showed an old inflammation with ulceration of the mucosa and with granulations and indurations in the intestinal wall. These processes caused constriction of the lumen The degenerative changes in the innervation of the intestinal wall were accompanied, particularly in the granulation tissue and in the indurations of the submucosa, by extensive and presumably newly formed bundles of nerve fibers and extremely large ganglion cells There were the well-known nodular tuberculoid structures in the intestinal wall, and in addition to this the

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The items in these letters are contributed by regular correspondents in the various foreign countries vessels showed surprising, hitherto undescribed changes Vessels of moderate caliber in the intestinal wall showed destructive changes sometimes accompanied by the formation of granulation tissue that contained giant cells The changes in the small intestine that are typical of regional enteritis occurring in childhood were characterized both by proliferations of the nerve plexuses in the intestinal wall and by changes typical of a granulomatous giant-cell angiitis These two criteria differentiated this process from other inflammatory intestinal changes and indicate that the process depends primarily on neurovascular changes

Dr Oppolzer stated that the myenteric plexus in patients with ulcerative colitis showed similar characteristics. Comparative studies on specimens from operation or autopsy of patients with ulcerative colitis and from patients with normal colons revealed greater density of the entire myenteric plexus in the former The number of ganglion cells per cubic centimeter was three times as large in patients with ulcerative colitis as in those with a normal colon Age, sex, or duration of the colitis did not influence the number of ganglion cells This raises the question whether these changes in the myenteric plexus are a result of the disease or are a constitutional characteristic of these patients Oppolzer believes that the changes in the myenteric plexus are primary and that only patients with this constitutional factor respond to neurosympathetic stimuli with colitis or enterocolitis He believes that the myenteric plexus can be assumed to be of this nature in patients with excessive sensitivity to pressure of the abdominal aorta to the left and above the umbilicus or in whom sensitivity to pressure of the ileocolic artery simulates disease of the appendix It is possible that histological changes exist also in the neurovascular plexus of the aorta and of the large abdominal vessels

Intraconchal Transfusion—At the same meeting Dr W Nissel and Dr W Rieder said that blood transfusion by way of the cavernous tissue of the lower nasal concha, or 'intraconchal transfusion," can be used for the intravenous infusion of blood in patients in whom the veins are in poor condition or inaccessible It will do away with venesection or with the dangerous intrasternal or intra-arterial methods Intraconchal transfusion is easily performed and makes possible the intravenous administration of blood in large quantities in a relatively short time This method is generally not advisable, however, in emergencies when blood must be given quickly

Exercises for Urinary Incontinence—At the meeting of the Austrian Society of Gynecologists and Obstetricians in Vienna on May 8, Dr A H Palmrich reported on a method of controlled pelvic floor exercises with the aid of a vaginotonograph The apparatus consists of a rubber bulb that is inserted into the vagina and is connected with a manometer and a writing apparatus The patient herself observes the oscillations that depend on the contractions of the abdominal muscles and the muscles of the pelvic floor Thus she can objectively determine the progress of her training even before improvement occurs in her ability to hold her urine Preoperative and postoperative exercises should be performed by all patients who undergo operations for prolapse of the uterus It is essential for the success of the treatment of incontinence to teach the patient to contract the muscles of the pelvic floor until a conditioned reflex is established

Complications After Wertheim's Radical Operation—At the same meeting Dr F Brandstetter stated that in women who undergo Wertheim's radical operation the urinary organs are exposed to great risk as compared to those in patients who undergo other gynecologic operations The reasons are found partly in the close relationship between the internal genital organs and the urinary system and partly in the required technique of the operation and the nature of the disease for which the operation is performed Modern anesthetic techniques, the improved methods of treatment of shock, and use of antibiotics make it possible to repair the urologic damage caused in patients by Wertheim's operation D J Spurny stated that in his series of 690 Wertheim's operations 45 necrotic fistulas (6 5%) occurred There was no visible damage to the ureter since the ureter was not even touched by the anatomic forceps The high incidence of fistulas (9%) mentioned by Professor Knaus was observed between 1947 and 1950 There were also years with an incidence of fistulas of only 2% The variable numbers of fistulas result from the respectively small numbers of cases An incidence of 6 5% is within the limits of the larger statistical studies Dr T. Antoine said that the 9% incidence of fistulas was very high, but it was only temporary Unfortunately one cannot always predict whether a fistula will occur, because occasionally everything goes well with a completely denuded ureter and in other patients a necrotic fistula may develop in a ureter that is completely in contact with the tissues Avoiding contact with the ureter undoubtedly helps to prevent fistulas

DENMARK

Mutual Aid for Physicians—Benevolent organizations concerned with physicians and their relatives in distress often find the demands made on them far greater than the available funds One such organization in Denmark has at its disposal about $5,800 yearly for distribution among so many physicians' widows that each can receive only a pittance The plan has now been launched with the approval of the Danish Medical Association of issuing a special stamp to be affixed to envelopes containing physicians' bills and letters A new stamp is to be designed every year The stamps are colored red, blue, or green and are sold for about one cent each They inform the recipient that the sender is a member of the Danish Medical profession and they are a reminder of the obligations of every Danish physician to his less fortunate colleagues and to their widows and orphans There are about 5,000 Danish physicians, each of whom sends out at least 1,000 letters every year with bills and other medical communications The physician who spends $7 or more on these stamps need report only half the sum as taxable income When this plan is put into force wholeheartedly, there should be an annual revenue of about $33,640 available for needy persons instead of the paltry sum now available

Quinacrine for Lupus Erythematosus—Dr E Harslof (*Nordisk medicin*, June 14, 1956) has had both encouraging and disquieting experiences with quinacrine in the treatment of disseminating lupus erythematosus A woman aged 66 was given 100 mg of the drug three times daily, the dosage being reduced to 100 mg daily after nine days This dosage was continued for two months, and there was a gradual and marked subsidence of the rash and the chest pain and a return of the temperature to normal Occasional recurrences of the rash were dealt with by giving another course of the drug and on one occasion by replacing the quinacrine with chloroquine Another patient, a woman aged 58, responded very well at first but, after a total dose of 27 gm of quinacrine had been given in the course of about 3½ months, a fatal case of pancytopenia developed

Treatment of Mania with Lithium—Dr Mogens Schou in *Nordisk medicin* for June 7 stated that it was unfortunate for the first sponsors of lithium therapy that its introduction into psychiatric use coincided with that of chlorpromazine and reserpine, whose often dramatic effects have overshadowed such a cheap and homely remedy as lithium carbonate, yet within its modest indications, chiefly chronic forms of manic-depressive psychosis, lithium has many advantages Schou gives lithium carbonate in 0 3-gm tablets When the drug is refused in tablet form, it may be introduced into a mixture made tasty by other ingredients The initial dose consists of two tablets given two or three times a day, with a reduction to one tablet three times a day after a week or two To prevent toxic side-reactions, the patient is supplied with an aqueous solution of sodium chloride Even in therapeutic doses, lithium frequently induces a fine tremor of the hands that can be safely ignored as long as it is not marked Early in the treatment there may be nausea, vomiting, and diarrhea These reactions usually subside in a few days when the dosage is reduced Some patients complain of giddiness, uncertainty of gait, and dryness of the mouth, all of them also calling for a reduced dosage Sodium chloride given by mouth counteracts these symptoms, and it may be well to withhold this treatment when the kidneys and heart are diseased Compensating for these shortcomings is the great advantage that lithium, given under close observation, can be administered over a long period, and Schou claims that no late effects have been observed following the continuous administration of lithium carbonate for more than three years In 69 of 85 manic patients treated with lithium the manic symptoms abated or disappeared under this treatment It is particularly useful in patients in whom chlorpromazine and reserpine have failed

Return of Microsporosis —The last serious outbreak of microsporosis in Denmark was reported on in 1907, and since then little has been heard of this highly infectious disease of the hair and skin, but following World War II it has appeared with growing frequency Dr Margrethe Gade in *Ugeskrift for laeger* for May 24 stated that 66 of a series of 67 cases were due to infection with *Microsporum lanosum* In only one patient was the infection due to *Microsporum audouini* the type most often affecting human beings In all 67 cases the diagnosis was confirmed by direct microscopy and culture In recent years the diagnosis of this disease has also been facilitated by the employment of ultraviolet light (Wood s light) In only 46 patients could the source of the infection be discovered the offending vector usually being a cat or dog In nine there was a possibility of infection from a human source through a schoolmate or other person From the epidemiological point of view these cases were most troublesome partly because it was difficult to assure uninterrupted treatment and supervision Some patients absented themselves from treatment, and others could not be traced The results of treatment were unsatisfactory and, in view of the poor results obtained with newest antimycotics no use was made of them The usual procedure was the application of local remedies containing sulfur or iodine In only five cases was epilation by x-ray attempted *The duration of treatment* ranged from three weeks to six months

INDIA

Provincial Medical Conference —The ninth Gujrath and Saurashtra Provincial Medical Conference was held at Navsari in May The Minister for Finance Prohibition and Industries for Bombay said that only by nationalization of the medical profession can physicians best help the development of socialism The first step in this regard has been taken by the introduction of the Employees State Health Insurance Act. The scope of this act has to be expanded gradually so as to absorb all workers As a first step all teaching posts in medical colleges and hospitals associated with them should be put on a full-time basis The next step is to bring medical care to the rural population A *bonus should be given to those physicians and nurses who are* transferred to rural areas

Medical Research in the Second Five Year Plan —The medical research objectives of the second five year plan included (1) strengthening the research facilities in existing institutions (2) creating new institutes for research in specific fields (3) training of research workers by a system of fellowships and by other means (4) providing opportunities for the maximum display of talent of research workers (5) creating conditions by which young and promising scientists may be attracted to a career in research and by which they may be induced to remain in research (6) initiating programs for the solution of the many urgent problems in the field of medicine and public health and (7) maintaining close cooperation with national and international agencies in all matters pertaining to research

College of Physicians and Surgeons —*A special meeting of the* College of Physicians and Surgeons of Bombay was held in June at which time Prime Minister Nehru stressed the urgent need for free medical service and said that this could not be provided without help from the state In spite of a number of good hospitals in Bombay, there is little doubt that the poor do not always get the same treatment as do the rich Many of them cannot *afford the expensive medicines prescribed by* the physicians The poor should get proper treatment whether in or out of the hospital To this end the medical profession should organize on a state basis so as to bring medical care to all the people and, more important, drugs should be manufactured by the state Following his address Mr Nehru was made an honorary fellow of the college

NETHERLANDS

Blood Alcohol Determination —The government is considering the introduction of a law by which punishment for excessive consumption of alcohol on the public highways would become more severe At present driving a car when under the influence of alcohol is only forbidden and the driver causing an accident is free to refuse to have his blood tested for alcohol content. The legislature now proposes to make this test compulsory in the future and to penalize a driver who although not obviously under the influence of liquor, has *nevertheless consumed* an amount capable of reducing his ability to control his car For practical reasons the government wishes to establish the critical level at an alcohol content of 0 05% Although driving with the above blood alcohol content would not in itself be punishable, causing an accident under these conditions would be The cooperation of the physicians is required in the enforcement of such a law The Royal Netherland s Medical Association believes there are serious objections to their cooperating in the enforcement of this law, because a physician in his treatment of his patients must be governed by the following principles (1) no procedure may be performed for which no direct medical indication exists or which is not meant for the benefit of the patient, (2) a procedure may be carried out only when the patient gives the physician his voluntary consent, and (3) the physician may perform only those procedures the consequences of which he completely recognizes

In the execution of the above-named legislation it may be noted first, that, although a venipuncture is in most cases easily performed it is in some cases successful only after repeated *attempts and at the cost of sizable hematomas* In the second place the possibility of the development of serum hepatitis must be considered Furthermore small irregularities in the puncture procedure or in laboratory determinations can be responsible for faulty results

Infant Mortality —In *Nederlandsch tijdschrift voor geneeskunde* (100 1742, 1956) J H de Hass reports that in 1955 the infant mortality in the Netherlands was reduced to 20 per 1 000 live births as compared with 104 in 1900 and 51 in 1930 In 1954 *the infant mortality in Sweden was 18.5 per 1 000, in Scot*land about 30 and in Western Germany and Belgium more than 40 In 1955 the mortality in various provinces in the Netherlands varied between 15 and 26 per 1 000 The decrease in mortality in the first week of life is still relatively slow but there are many signs that the total infant mortality will continue to decrease

Venereal Diseases in the Army and Air Force —In *Nederlands militair geneeskundig tijdschrift* (9 54 1956) Major H B *van Haren reports that* in the Army and Air Force in 1953 and 1954 there were only 208 new cases of venereal diseases (193 of gonorrhea, 5 of syphilis, 8 of veneral lymphogranuloma and 2 of chancroid) In 1946 and 1947 about 4,200 fresh cases were observed In view of the fact that the total Army strength increased by about 20% from 1947 to 1953 these figures are still more impressive This decrease in the occurrence of venereal diseases among soldiers is proof of the diminution of these diseases among the total Dutch population

UNITED KINGDOM

End of Colonial Medical Service —As colonies become self-governing, many of the British medical officers employed by the governments of these territories are being relieved of their duties This happened in India, and many physicians now serving in what may soon no longer be dependent colonies are anxious about their future A white paper on the subject has been issued (Her Majestys Overseas Civil Service Statement of Policy Regarding Organization, London, Her Majesty s Stationery Office 1956) This states that in territories where constitutional changes take place that fundamentally affect the condition of physicians serving the colony, compensation schemes will be negotiated with the governments concerned. In some areas, such as Nigeria shortages of physicians and nurses are serious, and they are being urged to remain, particularly those with experience They will be protected economically by being transferred to a special list in the Overseas Civil Service and rates of pay and conditions of service will be laid down by the British government *after consulting* with the colonial authority The former will pay pensions and any compensation payments if the physicians should be prematurely retired At least a year s notice must be given before terminating employment, and all physicians affected must accept an obligation to serve the British government up to the age of 50 in any post to which they may be directed The government hopes to find employment for all physicians affected up to the age of 50, up to which age pay will be guaranteed If suitable employment cannot be found, the physician will be paid his pension and compensation It is hoped to recruit physicians with exceptional administrative or professional qualifications to serve those colonial governments that are attaining self-government The scheme has been criticized because physicians may have to retire from overseas service at 50, and no arrangements have been made for finding suitable employment for them in Great Britain

Flour Contaminated with Insecticide—At Pontardawe, Glamorgan, over 100 people have been affected in an outbreak of poisoning due to contamination of flour with Endrin, an insecticide About 75 needed medical attention Within one to three hours of eating bread made from the contaminated flour, the acutely ill patients became unconscious, those most severely affected suffering from epileptiform fits, sometimes accompanied by violent muscular contractions and a period of unconsciousness Injuries to bones and joints were sustained in falling Those with milder attacks suffered from weakness, nausea, twitching and tingling of the limbs, deafness, and mental confusion All recovered without complications, except for injuries due to falling, but some remained ill for several days Sixteen patients were hospitalized Inquiries showed that 3 of 100 sacks of flour were contaminated The flour at the bottom of the affected sacks had become saturated with a solution of Endrin in xylene Live crops were not contaminated by spraying

Epidemic Keratoconjunctivitis—In November, an epidemic of keratoconjunctivitis occurred, which resulted in severe disability among workers in heavy industry on the river Clyde at Glasgow In January the number of cases increased rapidly and a minor epidemic involved a large shipyard, from which it spread to other shipyards and factories Complement-fixation tests with the adenoidal-pharyngeal-conjunctival–group virus antigen showed significantly rising titers in five of seven paired serum samples taken early and in the convalescent stages of the illness Tests on 52 serums taken on the same day in cases of different duration, ranging from one to 112 days after onset, showed predominantly high titers after the 14th day, but low titers before the end of the second week The findings point to a virus of the adenoidal-pharyngeal-conjunctival group as a cause of the outbreak Attempts to isolate and identify the serologic type of virus have been unsuccessful, but investigations are proceeding

New Cytostatic Drug—Dr Camillo Sellei and his co-workers in the *Lancet* of May 26 reported a clinical trial of a new cytostatic agent, B C M, formed by linking a nitrogen mustard with mannitol. It strongly inhibits the growth of metastasizing tumors and proliferating lymphocytes The recommended dosage is 1 0 to 1 5 mg per kilogram of body weight given intravenously on alternate days to a total of 900 to 1,000 mg It can also be injected intrapleurally or intra-abdominally in isotonic sodium chloride solution There is a risk of granulocytopenia with a total dose of more than 1,200 mg Six of seven patients with chronic lymphocytic leukemia, three with chronic granulocytic leukemia, and two of four with acute leukemia showed great improvement, although this was only temporary Lymphosarcoma was arrested in 3 of 5 patients, and, of 14 patients with Hodgkin's disease, excellent results in 6 and fair results in 4 were claimed B C M was given to 40 patients with cancer of the lung, and in 20 the pain was diminished and the general condition slightly improved Two other patients with cancer were improved sufficiently to lead a nearly normal existence B C M is recommended specially for tumors of the lymphoid system

Long-Term Treatment with Antibiotics—Dr James Livingstone and his co-workers reported their results with long-term use of oxytetracycline in a series of 38 patients with advanced chronic respiratory infections, one with chronic micrococcic bronchopneumonia, 17 with chronic bronchitis, 13 with infective asthma, and 7 with bronchiectasis (*Lancet* 1 775, 1956) Of these, 11 of the asthmatics were considered not to have a true infection, leaving 27 infected patients A good early response was obtained in 24 of these, but for various reasons treatment was continued in only 14 Only eight were still receiving oxytetracycline, which had been given to some of them for two and one-half years These were patients with chronic bronchitis and bronchiectasis, the original infecting organism in all being Hemophilus influenzae They have shown great improvement It was more difficult to obtain a satisfactory response if treatment was interrupted than if it was continued without a break The benefit obtained was probably due not only to suppression of H influenzae, but also to the prevention of recurrent acute pneumococcic infections No pneumococci were isolated from the sputum while oxytetracycline was being given Although the authors believe that deterioration will ultimately set in, owing to the development of resistant strains, this has not yet occurred in any patient who was treated without interruption How long treatment can be continued is a matter of conjecture

Artificial Oviduct—Cross and Erskine have described the construction of an artificial oviduct, based on embryologic observations on the common origin of the peritoneum, oviduct, and ovary (*Lancet* 1 777, 1956) The procedure consists of making an opening in the uterus, lining this opening with peritoneum, and using the round ligament and local peritoneal tissue in fashioning the tube This is constructed over a cord of polyethylene, which passes from the artificial aperture of the uterine cavity to the infundibulopelvic ligament near the ovaries The polyethylene cord is left in place for 90 days, during which time the patient is given antibiotics

Micrococcic Lung Infections—Drs Arthur and Myrddin Evans (*Lancet* 1 771, 1956) reported a series of 70 patients with micrococcic infections of the lungs They made frequent bacteriological examinations of sputum and complement-fixation tests for evidence of infection with the viruses of influenza A and B, psittacosis, lymphogranuloma inguinale, Q fever, and lymphocytic choriomeningitis, as well as titrations of Streptococcus group MG agglutinins and heterophil antibodies In four patients with influenza A infection, coagulase-positive Micrococcus pyogenes var aureus was isolated from the sputum, two of these died It was thought that the Micrococcus was a secondary invader The fact that there was no detectable antibody to micrococcic α-hemolysis during the acute phase of the illness suggests that the circulating antibody had been neutralized by the toxin produced as a result of massive micrococcic infection

The increasing incidence of micrococcic lung infections of infants was commented on by Disney and his co-workers in the same issue (page 767) Because they found that cultures made from the upper respiratory tract were generally uninformative, they cultured fluids obtained by thoracic puncture in selected cases They claim that this procedure carries little or no risk In infants with local signs of consolidation, thoracic puncture often yielded fluid containing coagulase-positive M pyogenes var aureus Thirty-five cases of micrococcic pneumonia were diagnosed in 530 infants under 2 years of age admitted to the hospital with lower respiratory infections Of these, 29 were primary micrococcic infections Treatment consisted of alleviating anoxemia with oxygen and bringing the infection under control with penicillin or, in penicillin-resistant patients, with erythromycin

Respiratory Virus Infection in the Royal Air Force—During 1954-1955 Andrews and his co-workers made a survey of acute respiratory illness associated with viral infections in 10 Royal Air Force establishments in England (*Brit M J* 1 1203, 1956) During the survey 1 in 14 of the men in the groups surveyed was hospitalized for more than 48 hours with a respiratory infection Specimens of blood were taken from 1,001 patients, and influenza B virus was found in 134 Only 15 of these were sufficiently ill to require hospitalization Six cases of influenza A infection were detected, but only two patients showed evidence of adenoidal-pharyngeal-conjunctival virus infection In an acute febrile illness in seven boys' boarding schools, an outbreak of pharyngoconjunctival fever with enlargement of lymph nodes was observed The clinical features were quite different from those of the adenoidal-pharyngeal-conjunctival group in the Royal Air Force In two Royal Air Force units those who had a rising titer to influenza B virus were interviewed at the end of the investigation About 33% had contracted typical influenza during the period, a third had minor respiratory symptoms, and the remaining third could not remember any illness

In volunteers from five of the Royal Air Force establishments where well-defined outbreaks of influenza B occurred, evidence of a significant association was found between preepidemic levels of antibody to soluble antigen and subsequent susceptibility to infection

Treatment of Breast Cancer by Irradiation of Pituitary—Greening describes the treatment of advanced cancer of the breast by irradiation of the pituitary in *Lancet* (1 728 1956) He stated that adrenalectomy, with a mortality rate of 6%, gives remission in only 35% of cases Hypophysectomy, while giving a greater proportion of successes, has a similar mortality rate An attempt was therefore made to destroy the pituitary gland by the implantation of unscreened radioactive gold (Au^{198}) Gold seeds were implanted in the anterior part of the gland through a small-bore needle introduced into the sella turcica via the nose and sphenoidal sinus Extremely accurate visual localization of the sella was obtained by means of an image intensifier working in two planes During 18 months, 50 patients have been treated in this way with no deaths, no damage to the optic chiasma, no basal meningitis, and no rhinorrhea of cerebrospinal fluid Irradiation of the hypophysis by Au^{198} appears to be a safe palliative measure in advanced carcinoma of the breast

Rapid Test for Hepatolenticular Degeneration—A rapid test for the early detection of hepatolenticular degeneration (Wilson's disease) is described by Ravin in *Lancet* (1 726, 1956) This is based on the finding that in this condition there is an abnormally low serum-copper oxidase activity A simple, rapid and accurate colorimetric estimation of this is used, requiring only standard laboratory equipment and depending on the presence of paraphenylene-diamine-oxidase in the serum The activity of this compound is calculated from the absorption spectrum of serum and paraphenylene diamine incubated together for an hour

Penicillin Resistant Micrococci—Micrococcic infections constitute a major clinical problem, particularly in hospitals, in which many of the strains are resistant to antibiotics, particularly penicillin Fairbrother reported (*Lancet* 1 716, 1956) that, of 550 strains of Micrococcus pyogenes var aureus recently isolated from infections 57% were penicillin resistant Previous figures for the same hospital were 42% in 1950-1951 and 57% in 1953-1954 An increase in penicillin-resistant infections throughout the community appears to be inevitable, particularly if the practice of using penicillin indiscriminately for all forms of trivial infection continues A serious development is the great increase of severe infections caused by penicillin-resistant strains of M pyogenes var aureus, for which the use of penicillin is not only valueless but may also be dangerous because it delays the introduction of an effective antibiotic A stricter control of penicillin therapy is suggested.

Pathogenic micrococci in primitive races are all sensitive to antibiotics Dr Phyllis Rountree examined nasal swabs from 120 natives of the Wabaga tribe in New Guinea, which has had practically no contact with white races (*Lancet* 1 719 1956) Their existence was unknown until 1910 The area in which they live was not penetrated until 1934 and since that time no more than 30 white people have had contact with them Twenty-three of the 120 natives were nasal carriers of M. pyogenes var aureus, and none of the strains were resistant to penicillin streptomycin, oxytetracycline, or chloramphenicol. Some of the nonpathogenic micrococci found in nasal swabs were resistant Phage typing of the strains isolated from these primitive people showed that these were similar to those found in civilized man

Help for Poliomyelitis Victims—A party of five physiotherapists and one occupational therapist has left England for Buenos Aires to help in the aftercare of children and adults crippled by the poliomyelitis epidemic that swept Argentina last year The Ministry of Health selected the volunteers after the Argentinian government had accepted the British government's offer to provide a team of specialists with particular experience in poliomyelitis and the use of respirator apparatus

Parity and Diabetes—In youth there is little difference in the sex incidence of diabetes, but after the age of 45 years the incidence is greater in women. Dr D Pyke has examined the effect of parity and weight in women on the incidence of diabetes (*Lancet* 1 818, 1956) Of 728 patients over 45 there were 477 women and 251 men. The percentage of diabetics in parous women rose with parity The incidence was no greater in the nulliparous than in the general female population of the same age, and it was only slightly greater in primiparas It rose with each succeeding pregnancy, being 171% greater than the expected value in women who had three children and 300% greater in those who had five children. Thus, a woman who has five children appears to have about three times as great a chance of developing diabetes as a woman who has had none Parity, however did not lead to the appearance of diabetes earlier in life the age at diagnosis was similar for all degrees of parity and was about 60 years The effect of parity was not due merely to a slightly greater tendency of multiparas to become fat, since the preponderance of women diabetics is found among those who are of normal or below normal weight. The menopause is unlikely to be an important causal factor because if it were, an excess of women diabetics would be expected in all parity groups who reached the climacteric, whereas this is not the case

Enuresis—Blomfield and Douglas (*Lancet* 1 850, 1956) collected data on the incidence of enuresis among 4,294 children (2 268 boys and 2,026 girls) At 6 years, 1 8% of the boys and 4 1% of the girls were enuretic by day, 12.2% of all children were enuretic at night and by the age of 7 years and 9 months the proportion had dropped to 7 3% At each age fewer girls than boys were enuretic at night, and among those severely affected, the difference between the sexes increased with increasing age Assuming these figures are true for the country as a whole, the authors calculate that among children aged 4 years in Great Britain 80 000 are occasionally and 30 000 regularly enuretic at night the figures at 7 years are 30 000 and 20,000 Comparison of different social groups suggested that enuresis in between 33 and 50% of the children could be prevented by a change in upbringing and environment. There are great social differences in the time that toilet training is started and control achieved The poorest families start training latest and their children are latest in achieving control In each social group early training was associated with a low prevalence and late training with a high prevalence of enuresis At least part of the social difference recorded was considered to be the result of different patterns of training, but only part, because in the children of agricultural workers toilet training starts late, and the prevalence of enuresis is low There was no significant difference in enuresis between first-born and later-born children

Triac.—Triac, the acetic acid analog of triiodothyronine, has an immediate thyroxin-like action. Trotter (*Lancet* 1 885, 1956) found that in patients with myxedema it has a relatively greater effect than thyroxin in lowering the blood cholesterol level but has only about 1 3% the activity of triiodothyronine in this respect and in raising the basal metabolic rate In euthyroid subjects with coronary artery disease, Triac lowered the cholesterol level without materially changing the metabolic rate A dose of about 3 mg daily lowered the cholesterol level by about 25% In three patients whose dose of Triac was increased gradually to 4 mg daily, there was no obvious rise in the basal metabolic rates although the cholesterol level fell These preliminary observations suggest that a detailed comparison of the effects of thyronine derivatives on blood lipids would be worth undertaking Triac also reduced the uptake of radioactive iodine by euthyroid patients, the dose required being about 25 times greater than that of triiodothyronine

Ulcerative Colitis—Truelove and Richards examined over 100 biopsy specimens of the colonic mucosa from just above the rectosigmoid junction from patients with ulcerative colitis (*Brit M J* 1 1315, 1956) The biopsy was harmless, as there was no local bleeding or infection and there were no bad effects on the course of the disease The specimens, which measured 0 4 cm in diameter, were obtained at 6 to 8 in from the anus A group of 24 patients subjected to sigmoidoscopy but without lesions of the colon were studied as controls Biopsy specimens of colonic mucosa were normal in all but two of them These showed increased proliferative activity in the epithelium Of 71 specimens taken from patients with ulcerative colitis with symptoms, 67 showed inflammatory changes The glandular tubules were irregularly arranged and often showed increased proliferative activity, edema, congestion, interstitial hemorrhage, an increase in infiltration by lymphocytes, plasma cells, eosinophils, neutrophils, and inflammatory exudate. Breaches in the epithelium were common, and both glandular and necrotic cells were shed into the glandular lumens. In severe cases there were crypt abscesses. More than half of 40 specimens taken from patients in clinical remission showed inflammatory changes. The sigmoidoscopic findings failed to correlate with the clinical state in one major respect—more than half the patients in clinical remission showed sigmoidoscopic evidence of disease. In a third of the patients with normal sigmoidoscopic findings, the biopsy specimens showed some degree of inflammation. Although the diagnostic value of sigmoidal biopsy is doubtful, the changes in histological appearances in an established case can be correlated with the clinical course of the disease. This was proved by repeatedly taking biopsy specimens during periods of remission and exacerbation. The authors believe that crypt abscesses play an important role in ulceration.

Poliomyelitis in the Tropics.—Although poliomyelitis is rare in native tropical populations, virtually all members of which are immune after the age of 5 years, an outbreak in the Nzega district of Tanganyika, with a population of 200,000, is reported by Kerr and Pease (*Brit. M. J.* 1:1337, 1956). The incidence was 99 paralytic cases per 100,000, and 95 of these were in persons under age 5. The epidemic was severe, and it occurred in a primitive community. The outbreak was attributed to a virulent strain antigenically similar to the relatively avirulent strain or strains that had apparently immunized most persons over the age of 5 years. While its source is unknown, it was probably introduced from outside, although it may have resulted from the activation of a dormant strain or from a natural mutation of strains already present. The authors conclude that outbreaks in primitive peoples must be expected with increasing frequency, unless a vaccine can be produced in sufficiently large quantities to immunize them.

Poisoning from Ethylene Glycol.—A death due to drinking an antifreeze mixture containing ethylene glycol is reported by Dr. I. Ross in the *British Medical Journal* (1:1340, 1956). A man drank 150 to 300 cc. of antifreeze. Five hours later he appeared ill and drowsy, and the next day he went into a coma. About 24 hours after taking the antifreeze he became delirious, his temperature and blood pressure rose, and lumbar puncture showed a turbid spinal fluid. A day later twitching of the arms and face occurred, the limb reflexes were brisk, the abdominal reflexes were absent, plantar responses were extensor, the liver was enlarged, and the patient was anuric. There were signs of a chemical meningoencephalitis. The blood urea level rose to 330 mg. per 100 ml. The blood pressure, which was 110/70 mm. Hg on admission to the hospital, rose to 200/115 mm. Hg. Twelve days after taking the antifreeze the patient died. At autopsy the kidneys were enlarged and showed hydropic degeneration, the lungs exhibited bronchopneumonic consolidation, and the right side of the heart was dilated. Death was attributed to acute cardiac and renal failure.

Is Dimethyl Phthalate a Drug?—The National Health Service Regulations provide that when a physician in the service prescribes preparations that are not considered to be drugs, the cost of the preparations may be recovered from him. A recent case in point concerns dimethyl phthalate, an insect repellent, which a physician prescribed for a patient who had once had malaria and was traveling to a malarial zone for a week. The executive council decided that dimethyl phthalate was not a drug. The physician appealed to the local medical committee, which decided it was a drug. Because of the disagreement of opinion the Minister of Health put the matter before referees. At the inquiry the physician justified his prescription of the repellent as an agent for the prophylaxis of malaria and put it in a class of other preventative measures, such as revaccination against smallpox or typhoid fever. The counsel for the Minister of Health argued that a mosquito repellent was not a medicine, because its action was external. He compared it with a mosquito net or a beekeeper's veil. The referees stated that, if dimethyl phthalate were considered a drug, there was no reason why housewives should not be provided with a spray to keep off flies. They decided that dimethyl phthalate was not a drug that the health service was called on to provide.

Rehabilitation.—In *Rehabilitation* (Spring, 1956, page 2) Richardson and Weir analyze the findings in 84 disabled patients who have been followed for six months. Their major conclusion is that age, skill, and motivation to work are more important than disability in determining successful rehabilitation. Thus, while at the end of six months 47.6% of the entire group were employed, the under-40's contributed 70% of the employed group and only 52.25% of the unemployed group. The severity of disability was similar in both the employed and the unemployed, irrespective of age. Within each grade of skill the proportion of employed was higher in the younger age group and in both age groups the proportion of employed was least in the unskilled. Further, whereas 60% of the employed had an I. Q. above 100, the corresponding figure in those not unemployed was 43%. Motivation is the most important single factor. Given a positive attitude the prospect of placement is greatly enhanced, but there is still too great a tendency to attribute success or failure to the degree of physical handicap. Family influences are a powerful factor in motivation or the lack of it.

Nuclear Radiation Hazards.—The report of the Medical Research Council committee, appointed last year to investigate the hazards to man of nuclear and allied radiations, in considering the possible genetic effects, uses as a standard the "doubling dose" or quantity of radiation required to double the spontaneous mutation rate. This dose almost certainly lies above 3 r, but it may even be more than 150 r. Representative values probably lie between 30 and 80 r. It is extremely improbable that in times of peace the whole population, or a large fraction of it, will receive an additional dose of this magnitude from industrial or other sources. Even in the case of the small number who may be employed on certain industrial processes or be receiving medical treatment involving x-rays, no noticeable effects will be produced either on their immediate offspring or their descendants. For levels up to doubling dose, and even some far beyond, the genetic effects of radiation are appreciable only when reckoned over the population as a whole and need cause no alarm to the individual on his own account.

Diagnostic radiology is the most important source of man-made irradiation. In 1955 nearly 18 million x-ray examinations were carried out in England and Wales and it is estimated that the amount of radiation reaching the gonads from this source is as much as 22% of that derived from natural sources. The total dose to the gonads from natural sources is estimated to be 0.1 r per annum, or 3 r per generation of 30 years. The contribution from radiotherapy is much less than that from diagnostic radiology, but probably greater than that from any other source. X-ray fluoroscopy for shoe fitting contributes not more than 0.1% of the dose to the gonads received from natural radiation. The average luminous wrist watch contains about 0.2 μc of radium, and the calculated dose to the gonads from wearing such a watch is about 0.01 r a year. As there are in use in this country about 3 million men's watches, one million women's and children's watches, and 10 million luminous alarm clocks, it is estimated that the population dose from this source is about 1% of the natural background. The population dose from television sets is estimated at much less than 1% of the dose received from natural radiation. The amount of radiation from cosmic sources is greater at high altitudes, but it is estimated that the additional dose received by persons in aircraft, averaged over the whole population, is at present insignificant compared with that received from the natural background.

For the 9,000 medical workers and 5,000 industrial workers occupationally exposed to irradiation, it is estimated that the average gonad dose per person is about 2.5 r a year, and that this constitutes 1.6% of natural background radiation. The Atomic Energy Authority now employs about 7,000 people, and the average dose these receive from all occupational sources of radiation is 0.4 r a year. It is estimated that the gonad dose averaged over the population as a whole is about 0.1% of the natural background.

From the nuclear devices exploded in other parts of the world up to the present time, the population of this country may expect to receive over the next 50 years additional radiation amounting to 0.02 to 0.04% of the radiation that will be received over the same period from natural sources. If the firing of bombs were to continue indefinitely at the same rate as over the past few years, radioactivity would gradually accumulate to a level at which an inhabitant of this country would receive an average dose of 0.026 r over a period of 30 years or about 1% of that which he would receive in the same period from natural sources. The contribution to this figure of thermonuclear explosions, relative to their numbers is very great. If the rate of firing of weapons of this type increases exposure to radiation will be significantly increased. It is unlikely that the inhalation of radioactive particles present in the air as a result of fall-out would constitute a problem in ordinary life. The deposition of radioactive strontium is probably a greater hazard, as it is soluble and if ingested is deposited and retained in bone. Measurements that have been made of radiostrontium in bone show that the highest levels are at present about 1,000 times less than is considered permissible for those who are occupationally exposed. Calculation of the fall-out likely to come if the present rate of firing continues suggests that this level may be increased tenfold in the course of several decades. The present level would produce no detectable increase in the incidence of ill-effects but we are now accumulating radiostrontium at an appreciable rate and a close watch will need to be kept on the increase. The possibility cannot be ignored that, if the rate of firing increases and particularly if greater numbers of thermonuclear weapons are used we could within the lifetime of some now living be approaching levels at which ill-effects might be produced in a small number of the population. The time has come for a review of present practice in diagnostic radiology and of certain uses of radiation in the treatment of nonmalignant conditions, particularly in children. Among the less important sources of radiation, it is hoped that the use of x-rays in shoe fitting will be abandoned except when prescribed for orthopedic reasons that watches and clocks with luminous dials will be confined to necessary uses and that the x-ray hazard from television tubes at present negligible will be borne in mind if special types of high voltage equipment come to be widely used.

As an appendix to the report the findings in an investigation into 13,352 patients with ankylosing spondylitis who had been treated with x-rays at 81 radiotherapy centers during the period 1935 to 1954 inclusive are given. These patients had all been followed for periods ranging from one year to 20 years, with an average for the group of just under 5 years. Of the entire series, leukemia, aplastic anemia, or myelofibrosis had developed in 49 and 46 of them had died by the end of 1955, 28 from leukemia, 13 from aplastic anemia and one from myelofibrosis. Three other patients with leukemia and one with aplastic anemia had died from other causes. The numbers of deaths from leukemia and aplastic anemia that would be expected under normal conditions were 2.9 and 0.3 respectively. The differences between the observed and expected deaths from both diseases are highly significant. This increase is believed to be the result of exposure to x-rays, although the possibility that patients with ankylosing spondylitis are unusually sensitive to the action of x-rays cannot be excluded.

Reciprocity with Sweden.—The United Kingdom and Sweden have concluded an agreement on social security whereby British families will qualify for Swedish family allowances as soon as they become civilly registered in Sweden and British nationals resident in the United Kingdom will be entitled to use the Swedish health services while they are in Sweden. Sweden is the first country outside the Commonwealth to offer full reciprocity with the British Health Services by making its health services available for all British nationals including tourists. Agreements with other countries have covered only British nationals employed in those countries. The agreement also covers the cash benefits provided by the two countries for unemployment, sickness maternity old age, widowhood, orphanhood, and industrial injury. The agreement will not come into force until it has been ratified.

William Harvey Tercentenary.—June 1957 marks the tercentenary of the death of William Harvey. The Harveian Society of London proposes to commemorate the occasion by holding an international scientific symposium on the circulation June 3 to 7 1957 in the Royal College of Surgeons. The subjects to be discussed include "The Circulation from the 17th to the 20th Centuries," "Regulation of the Circulation," "Results of Cardiac Surgery," "Coronary Circulation," "Pulmonary Circulation," "Cerebral Circulation," "Splanchnic Circulation, and "Peripheral Circulation." The concluding meeting will be held at Folkestone Harvey's birthplace.

Antenatal Care and Toxemia.—Although the maternal mortality rate in England and Wales is now under 1 per 1,000 there are still over 500 maternal deaths annually, many of which are preventable provided antenatal supervision is adequate. Toxemia of pregnancy is the principal cause of avoidable maternal deaths and the early recognition of toxemia depends on an antenatal routine designed to detect a slight rise in blood pressure, slight edema or unduly rapid gain in weight. Albuminuria is a late sign, indicating a serious risk of antepartum hemorrhage.

In its recommendations the Standing Maternity and Midwifery Committee of the Ministry of Health stresses the importance of the patient's personal history. Any evidences of malnutrition renal disease heart disease pulmonary tuberculosis in the past, or complications in a previous pregnancy are reasons for delivery in the hospital. All primiparas over 30 years old, all multiparas over 40, mothers who have had three or more previous confinements, and those with multiple pregnancies should have their confinements in hospital. The first examination should include an x-ray of the chest, a full dental examination (with any treatment required), and examination of the blood to determine hemoglobin value, blood group and Rh status and for evidences of venereal disease. The hemoglobin determination or even a complete blood examination should be repeated at 30 to 32 weeks. An appreciable number of maternal deaths from ante or postpartum hemorrhage could be prevented if preexisting anemia were detected and then treated. Supplemental iron is required by about 25% of expectant mothers and should be given if the hemoglobin level is below 80%. The importance of the Rh examination is shown by the fact that deaths of infants due to hemolytic disease rose from 410 in 1953 to 461 in 1954. It is recommended that the physician see the mother again at 30 to 32 weeks and 36 weeks and that in the interval she be examined by the midwife monthly until the 28th week, fortnightly until the 34th or 36th week and then weekly.

Care of Epileptics.—Although precise figures are not available the incidence of epilepsy in this country is probably about 4 per 1,000 of the population, according to a report (The Care of Epileptics) published by a subcommittee of the Standing Medical Advisory Committee of the Ministry of Health. About 10% of all epileptics have antisocial behavior disorders. At present there are two hospitals in the National Health Service that provide special care for epileptics. In addition there are eight epileptic colonies and homes six run by voluntary bodies and two by local authorities. The present position with regard to the care of epileptics is unsatisfactory, in that a few patients receive no treatment for their epilepsy, while others are merely taking routine doses of various drugs, which may have been first prescribed long ago and never reviewed. The major recommendation of the committee is that, although the general practitioner should continue to be responsible for the long-term medical supervision of the epileptics in his practice, each regional hospital board should establish a diagnostic and treatment clinic for each million of its population and a long-term treatment and rehabilitation center for each 2 million of its population. These clinics and centers should normally be under the direct supervision of a neurologist, who is the leader of a team consisting of pediatricians, psychiatrists, child guidance experts, radiologists, almoners psychologists, and others. Electroencephalographic facilities and the services of a neurosurgeon should also be available. Special attention should be devoted to the care of epileptics with behavior problems, many of whom are suffering from temporal lobe epilepsy a condition in the treatment of which surgery may play an important role.

Whenever possible children suffering from epilepsy should be educated in ordinary schools. A plea is made for the greatest care in the labeling of children as epileptics. Some children who have not had a fit for many years have continued to be regarded as epileptics. If a child remains free from fits after treatment has been withdrawn for a certain time he should certainly not be regarded as suffering from epilepsy although he should continue under such medical supervision as may be deemed necessary. The patient whose main disability is a mental defect but who has occasional fits should enter a mental hospital, not an epileptic colony. The aggressive antisocial epileptic should be classed as a psychopathic personality rather than as primarily epileptic. Experience shows that the patient suffering from both psychopathy and epilepsy often has disease of, or damage to, the brain. In the case of the younger patients operation may offer hope of ameliorating or removing both types of symptoms

MISCELLANY

LABORATORY DIAGNOSIS OF POLIOMYELITIS AND POLIOMYELITIS-LIKE DISEASES

Relatively recent findings that indicate that many diseases masquerade as poliomyelitis have made physicians increasingly aware of the difficulty of diagnosing true poliomyelitis It is now generally recognized that nonparalytic cases cannot be accurately diagnosed without laboratory tests There is growing evidence that laboratory tests are equally important in diagnosing some paralytic cases Agents that may produce a clinical picture similar to poliomyelitis include, in addition to ECHO and Coxsackie types of virus, such infections as lymphocytic choriomeningitis, mumps, and herpes

The development of the poliomyelitis vaccine intensifies the need for laboratory confirmation of all cases of poliomyelitis and poliomyelitis-like diseases With widespread vaccination, the incidence of true poliomyelitis can be expected to decrease, and it will be more and more difficult to identify clinically the isolated and sporadic cases that do occur Moreover, the vaccine itself may modify the course of the disease, thus further complicating the diagnostic problem If an accurate evaluation is to be made of the total and long-range effect of the vaccine, it is essential to confirm all reported cases by laboratory testing

To provide such confirmation, a network of laboratories, especially equipped to analyze specimens taken from patients with poliomyelitis or poliomyelitis-like diseases, has been organized by the Communicable Disease Center of the Bureau of State Services, Public Health Service, U S Department of Health, Education, and Welfare The network includes a number of academic research laboratories and state health department laboratories Physicians are urged to use these facilities, sending specimens to their state health department or to whatever laboratory is designated by their state health department Full cooperation by all physicians will both promote research and make possible a definitive evaluation of the effectiveness of the poliomyelitis vaccine In collecting, preparing, and shipping specimens, the procedures outlined below should be carefully followed

Preparation and Shipment of Diagnostic Specimens

Type of Specimen to Be Collected

Virus Isolation —Materials for isolation must be freshly obtained Feces have been the most productive medium, and that obtained from normally passed stool or fecal material collected by glove or swab is suitable Throat washings or swabs and spinal fluids may also yield agents Since the likelihood of isolating virus is increased by collecting several specimens over a period of time, it may be desirable, where circumstances permit, to collect additional specimens separated by 48-hour intervals

Serologic Tests —Serum is to be obtained from clotted blood collected and kept under sterile conditions No preservative need be added Serum separated from clot at source prevents hemolysis, which interferes with some tests If it is not possible to separate the serum from clotted blood, whole blood can be used However, whole blood must be shipped promptly so that it reaches the laboratory within 24 to 48 hours after it is collected At least 20 ml of blood (10 ml of serum) should be collected for serologic examination to permit a multiplicity of tests, confirmation, or repetition of tests when equivocal results make this necessary

Time to Collect Specimens

Virus Isolation —The time in the course of the clinical disease that specimens are collected is of utmost importance In general, the earlier in the acute stage the specimen is taken, the better the chance for successful isolation of the virus Certainly, the specimen should be taken while the patient is still acutely ill and febrile Several serial specimens, each separated by a day or more, may improve chances of isolation

Serologic Tests —Serum specimens *must be paired,* since significance can only be attached to an appreciable rise in antibody titer The first sample should be collected as early in the illness as possible and the second from two to eight weeks after the beginning of convalescence The best method is to take a series of samples acute, two, four, and eight week convalescent

Container for Specimen

Virus Isolation —Specimens should be placed in bottles or jars with tight stoppers, or in tubes with rubber stoppers, and secured with tape Unless they can be shipped to reach the laboratory within 24 hours of the time they are taken, they should be frozen as soon as they are collected and kept at a temperature of −10 C or lower

Serologic Tests —The type of container must protect the serum or blood from loss by breakage as well as from contamination and deterioration Samples in test tubes with tight rubber stoppers (reinforced by adhesive tape) or leakproof screw-top vials are satisfactory

Packing and Shipping Specimens

Virus Isolation —Frozen specimens (i e , all specimens except those that can reach the laboratory within 24 hours after collection) should be packed in dry ice and shipped in an insulated carton by the most rapid means available Unfrozen material need not be shipped under refrigeration but should be carefully packed to avoid breakage It is particularly important that specimens that are not frozen reach their destination rapidly, as delay reduces the chances of recovery of virus

Serologic Tests —Serum samples for serologic tests may be shipped without refrigeration in ordinary mailing containers, adequately protected against spillage and breakage However, these specimens should also be sent by the most rapid method

Data to Be Supplied with Specimens

The Polio Surveillance Program —Specimen Shipment Form [PHS 400 119 (CDC) Ga], available from the state health department laboratory or epidemiology service, lists the information desired on each patient Briefly, this requests identity and

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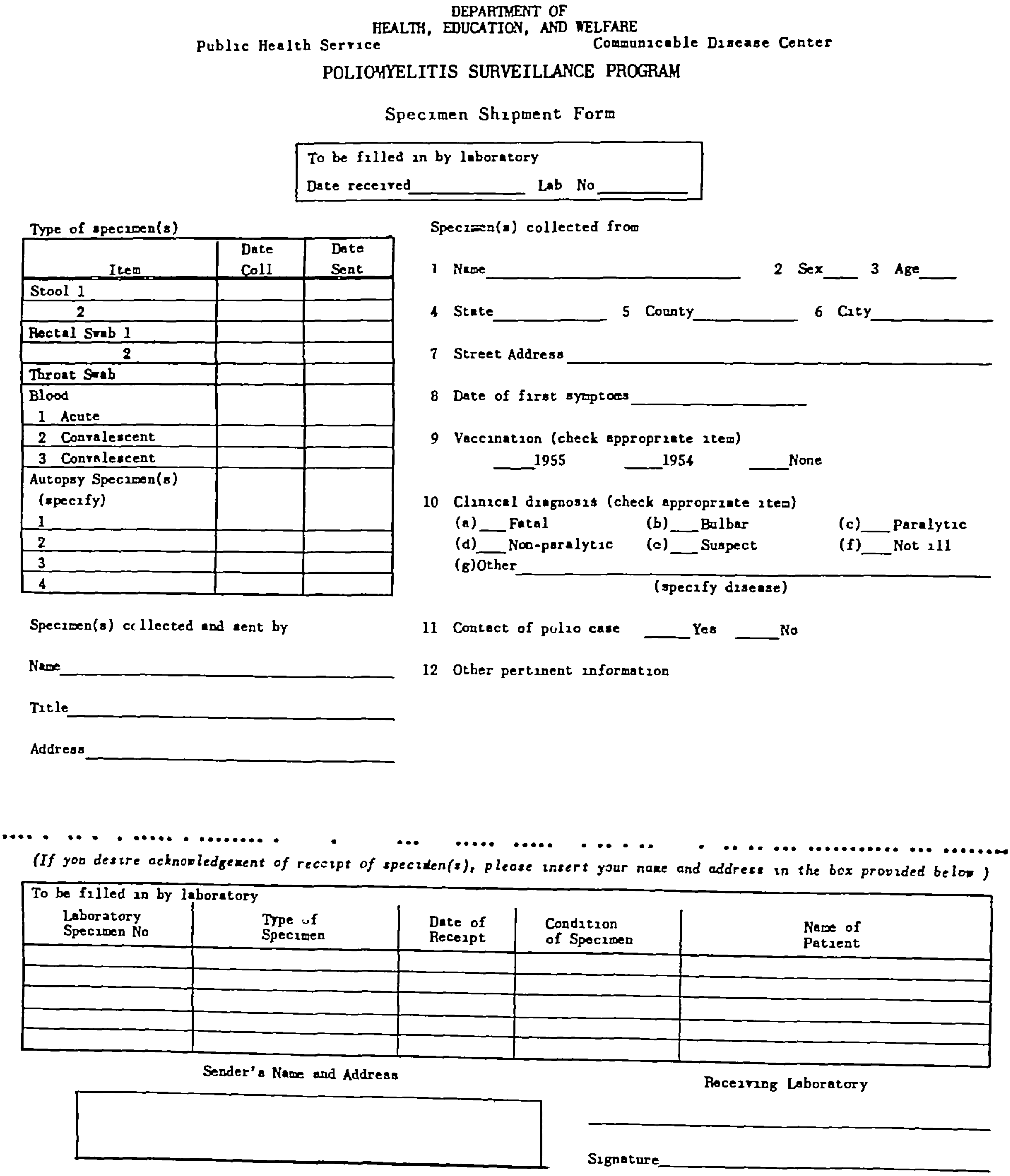
This report is from the Bureau of State Services, Public Health Service, Department of Health, Education, and Welfare brief personal history of the patient with date of onset, clinical impression antipoliomyelitis vaccination history, indication of contact with similar cases, and type of material collected and dates collected Specimens should be forwarded as directed by the state public health laboratory Results will be reported to the physician While the laboratory tests have been simplified, and the procedure shortened substantially, the results of laboratory examination may not always be of value with respect to a specific patient In some cases, however, they may be of immediate use, and in all situations where adequate information is obtained the results will have epidemiological significance (see figure)



DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Public Health Service Communicable Disease Center

POLIOMYELITIS SURVEILLANCE PROGRAM

Specimen Shipment Form

To be filled in by laboratory
Date received__________ Lab No__________

Type of specimen(s)

Item	Date Coll	Date Sent
Stool 1		
2		
Rectal Swab 1		
2		
Throat Swab		
Blood 1 Acute		
2 Convalescent		
3 Convalescent		
Autopsy Specimen(s) (specify) 1		
2		
3		
4		

Specimen(s) collected and sent by

Name__________

Title__________

Address__________

Specimen(s) collected from

1 Name__________ 2 Sex____ 3 Age____

4 State________ 5 County________ 6 City________

7 Street Address__________

8 Date of first symptoms__________

9 Vaccination (check appropriate item)
____1955 ____1954 ____None

10 Clinical diagnosis (check appropriate item)
(a)___Fatal (b)___Bulbar (c)___Paralytic
(d)___Non-paralytic (e)___Suspect (f)___Not ill
(g)Other__________
(specify disease)

11 Contact of polio case ____Yes ____No

12 Other pertinent information

....

(If you desire acknowledgement of receipt of specimen(s), please insert your name and address in the box provided below)

To be filled in by laboratory

Laboratory Specimen No	Type of Specimen	Date of Receipt	Condition of Specimen	Name of Patient

Sender's Name and Address

Receiving Laboratory

____

Signature__________

THE LEISURE CORNER

SKIN DIVING

Devotees of the sport claim that skin diving is the fastest growing hobby in the world today Nowhere is it so popular as in the United States, where nearly 2 million persons are enthusiastic about its fascinations Many persons find themselves committed to the sea the moment they put on masks and snorkels Brushing fins with some of the inhabitants of the sea, skin divers often develop so great a love for the sport that they give it every leisure moment they can It is a hobby that can be practiced and enjoyed in all clear, unpolluted waters—inland rivers, lakes, and the sea

An athletic generation of doctors now participates in the thrilling pursuit of fish, which is very much a part of skin diving Having discovered that there is far more to life under water than just the thrill of harpooning a prize of the deep, they have had revealed to them the complete release that comes with moving about in a veritable 'liquid world" The joy and stimulation derived from underwater movement tempts every skin diver to pursue the enchanting beauty found in the sea Actually the sea unfolds a new frontier fully capable of capturing the scientific imagination of any doctor who wishes to invade a world three times as large as the one in which we live

Modern diving equipment enables the skin diver to adapt himself with reasonable security and comfort to an element once reserved entirely for fish Since the introduction of the terms "skin diving" and "spear fishing" into the vocabulary of sportsmen, methods and equipment employed in these underwater activities have undergone a series of developments The matter of wearing masks, fins, and guns started on a large scale in the Mediterranean Although the technique of modern-day skin diving has been greatly influenced by Italian and French divers of a generation ago, many Americans residing in Florida and California have added new tricks to the skin diving technique From 1945 to the present, the perfection and volume of equipment manufactured in the United States and in Europe have been phenomenal The sale of these articles in the United States alone has been running well over 50 million dollars for the past three years At this point it is just as well to note parenthetically that while mask, snorkel, and fins give a skin diver unknown flexibility in water, they are completely dependent on the wearer's proficiency in swimming Possession of a good water technique as well as a fairly good physical condition are necessary attributes for underwater sports, whether spear fishing or skin diving

For the doctor who is about to start spear fishing activity, essential equipment consists of a mask, snorkel, fins, and a gun First and foremost, the face mask makes it possible for the diver to see clearly under water A mask provides the skin diver with a glass-framed picture of constantly changing beauty of a world under the sea Face masks, equipped with shatterproof glass, are considered more practical than those provided with plastic lenses, since they have less tendency to scratch and fog on the inside The head straps of a mask are adjusted to fit snugly, the edges of the mask coming in contact with the skin of the face should be soft and flexible so as not to pinch or chafe Once a mask is comfortably in place, the wearer tries to breathe through his nose in order to check if it is airtight If air enters through cracks, it follows that water will too Testing a mask in shallow water facilitates necessary adjustments and at the same time permits the diver to practice mouth breathing and to habituate himself to his mask-encased nose

The word snorkel is derived from the name of the apparatus used by German submarines, at the end of World War II, that allowed them to run just below the surface of the sea while drawing fresh air into the hulls Equipped with a snorkel, a skin diver has only to swim leisurely on top of the water, breathing easily and comfortably, watching the bottom of the water with undivided attention through the clear glass of his face mask Fins or flippers, which are worn on the feet, provide anywhere from 30 to 40% more propulsion to the diver Fins should be fairly stiff and not too flexible in order to get the best results from one's footwork At first, these new extensions of the feet tend to tire the swimmer, since sets of muscles are newly brought into play Novice skin divers usually have annoying muscle strains and painful cramps in the legs The flutter kick which is used in the crawl stroke, provides the best results with the least effort on the part of the swimmer A slow rhythmic kick gets one about with surprisingly little work and conserves a lot of energy When spear fishing first loomed on the horizon, the sports diver learned to use a simple hand spear Today dozens of different model guns can be purchased Starting with the simple Hawaiian sling gun, the forms now available include guns powered by rubber bands, metal springs, compressed air, and carbon dioxide Some are quite formidable and dangerous, and all should be handled with the respect that is due a dangerous weapon No matter how well equipped a diver is, success in spear fishing really depends on the diver himself Spear fishing requires considerable skill and patience, a good amount of second wind, and fairly well conditioned reflexes

To the diver more interested in exploring the deeper parts of coastal waters than in hunting down its fishy inhabitants, air lungs are available at prices ranging from $70 to $200 The principle on which all air lungs are based is essentially the same Most lungs use the original Cousteau-Cagnan feature, which has the air line entering the mouth directly, where it is held in place by the teeth The lung developed by the Scott Aviation Company uses a full face mask, which covers both the nose and the mouth, allowing both structures to be utilized in breathing under water Diving lungs are designed to be slightly buoyant, following Archimedes' principle a solid body immersed in a liquid is buoyed up by a force equal to the weight of the liquid displaced The doctor who undertakes to learn these techniques need not be reminded that deaths from air embolism have occurred when skin divers surfaced too quickly even from depths of less than 10 m (32 8 ft) The adjustment of buoyancy by using weight belts also introduces an element of danger A few sessions with a good instructor are well rewarded

The time a skin diver will spend under water, no matter how short a period, will often result in some bit of acquired information about marine life Much of our information about the sea has come from such sources as ships' logs, fishermen's reports, and even native legends Now that the sea is wide open to sportsmen, many physicians will enjoy directing their scientific training to the marine world, breaking the barrier of mystery and isolation that the sea has maintained for thousands of centuries Improvements in underwater photography during the past few years have encouraged many skin divers to abandon the harpoon and take up the camera instead Today camera-equipped divers are taking thousands of pictures of undersea life A photograph provides a sure and efficient method for capturing a multitude of detail for later study in classroom and laboratory No matter how eloquent a diver may be with word or pen, he can seldom hope to transmit the fleeting vividness of a particular moment with the same precision and clarity as that provided by a few good photographs

A diver who is equipped with two cylinders of air can remain under water at a depth of about 30 5 m (100 ft) from 12 to 20 minutes and still be able to manipulate his camera with ease The development of underwater photography was begun in 1893 by a French biologist named Dr Louis Boutan He made recognizable pictures under water with what would seem today to be the most primitive mechanism a fixed-focus camera enclosed in a huge box consisting of copper At the turn of the century Dr Boutan made the first underwater night pictures, with light emanating from burning magnesium encased in a diving bell apparatus Since the end of World War II underwater photographic equipment has been greatly perfected As a result, knowledge of underwater photographic conditions has also improved and broadened The Cousteau Undersea Research group, which has extensively covered the underwater field in pictures and books, is currently photographing the excavation of a 2,000 year-old galley in 42 6 m (140 ft) of water for a motion picture soon to be released

There is a modern canyon below the world we live in, full of dark green weeds, black sea urchins, and small flower-like white algae Fingerlings glide in the clear blue infinity down into which the sands slope If you ever want the experience of flying without wings, standing up-side-down on one finger, doing somersaults, and playing hide-and-seek with fish, all these thrills can be yours when you go skin diving—and the inhabitants that you will meet in this wonderland of the sea will never discuss medicine with you

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Complications of Myocardial Infarction C A Laugach Jr Pennsylvania M J 59 673-676 (June) 1956 [Harrisburg, Pa]

Relatively few patients with myocardial infarction die at the onset of their illness and the survival of the others is greatly influenced by the management of the resulting complications Shock should be recognized when signs of peripheral vascular collapse are present as well as hypotension Some patients may have hypotension associated with left ventricular failure If an attempt is made in these patients to raise the blood pressure by intravascular infusion or the use of a pressor agent, the left ventricular load may be sufficiently increased to cause pulmonary edema. Vasopressor drugs are more likely to help those patients who have normal or relatively low peripheral resistance Unfortunately there is no simple test for determining the peripheral resistance Therefore the response of the peripheral circulation to the judicious administration of a pressor agent may serve as a clinical guide

The persistence of pain in acute myocardial infarction may indicate persistent myocardial ischemia and progressive myocardial necrosis Many of the patients with persistent pain do not survive The administration of oxygen in addition to narcotics will frequently give relief to these patients The administration of bishydroxycoumarin (Dicumarol) also frequently relieves pain Premature ventricular beats are the most common of the arrhythmias complicating myocardial infarction When they are numerous they may be a premonitory sign of ventricular tachycardia or a fatal episode of ventricular fibrillation Quinidine or procaine amide (Pronestyl) are usually effective in suppressing these premature beats The value of quinidine in preventing the more serious ventricular arrhythmias and sudden death is debatable The second most frequently noted arrhythmia is atrial fibrillation which usually subsides spontaneously

Acute left ventricular failure or congestive heart failure may develop shortly after the onset of acute myocardial infarction Acute left ventricular failure is the more common and it often appears earlier in the course of the illness Early treatment with sedation, oxygen, and digitalis may prevent its progression to fatal pulmonary edema Congestive heart failure should be treated like congestive failure in any other situation The development of phlebothrombosis in the extremities is frequently insidious While the use of anticoagulants has proved valuable in the prevention of these thromboembolic accidents, there is no agreement on the routine use of these drugs

Rupture of the heart is an infrequent complication It usually occurs during the first two weeks while there is maximal myocardial necrosis When the free wall of the left ventricle is involved there is usually sudden death Rupture of a papillary muscle results in the sudden onset of free mitral regurgitation and left ventricular failure with survival usually a matter of hours Perforation of the interventricular septum is also manifested by the sudden onset of left ventricular failure but survival is longer That physical activity may play a part in rupture of the heart was revealed by a study of a group of psychotic patients with acute myocardial infarctions whose activity could not be controlled An increased incidence of rupture of the heart after acute myocardial infarction has been noted when there is persistent hypertension The author also comments on the relation of ventricular aneurysm to thromboembolism and rupture of the heart A small number of patients with myocardial infarction (15%) will have shoulder pain with limitation of motion in the affected joint. The pain may radiate into the arm and chest Encouraging the patient to use his arms during convalescence may prevent the development of a frozen shoulder The use of an analgesic agent and mild exercise may be all the active treatment needed once the complication has presented itself

Thrombocytopenic Purpura Due to Quinidine I. Clinical Studies F G Bolton and W Dameshek. Blood 11 527-547 (June) 1956 [Baltimore]

Thrombocytopenic purpura as a result of hypersensitivity to chemical substances is relatively uncommon It occurs after exposure to organic arsenicals or sedormid or other drugs such as quinidine Data obtained in five cases clearly indicated that the thrombocytopenic purpura from which the patients were suffering was due to sensitivity to quinidine sulfate and that quinidine is able to cause agglutination of platelets in a normal platelet-rich plasma (serum) Sometimes an antibody is present, a potential platelet-destroying mechanism Quinidine intoxication occurs most commonly in women over 50 years of age who have been given quinidine after an attack of palpitation The toxic effects are of two main types those due to overdosage, which may occur after quite small doses and which may lead to "cinchonism" (tinnitus and other auditory disturbances, blurred vision and other ocular symptoms nausea and diarrhea) and those due to abnormal reactions or drug allergies (drug hypersensitivity) which are frequently those of allergic diseases skin rashes serum sickness arthritic drug fever, asthma, lymphadenopathy arthralgia agranulocytosis rarely hepatic damage, and thrombocytopenic purpura, any or all of which may follow the use of quinidine with or without another drug they disappear suddenly when the drug is withdrawn In some cases intoxication by quinidine resembles an East African disease of unknown origin called "onyalai "

Subacute Alcoholic Noncirrhogenous Hepatitis Histobiological Types G A Albot, C Schlumberger C M Faye and others Semaine Hôp Paris 32 1705-1722 (May 20) 1956 (In French) [Paris France]

The authors describe the initial histological lesions in the so-called enlarged liver of the chronic alcoholic The study was based on the findings obtained in 22 patients by puncture biopsy hepatic radiography and electrophoresis Two kinds of subacute hepatitis were detected one is characterized by a general cellular clarification and the other by a steatotic state that is essentially a cytolytic hepatitis with fatty infiltration Both have in common a characteristic biological aspect filtration tests (water galactose hippuric acid) show disturbance but flocculation tests are normal Electrophoresis shows a constant and important diminution of alpha^1 globulins contrasting with various modifications of albumin and of beta and gamma globulins which makes this condition different from cirrhogenous hepatitis and cirrhosis In both kinds of subacute hepatitis the bromsulphonphthalein test is always normal and so is the red colloidal test. In three cases of subacute steatotic hepatitis treated by lipotropic medication the steatosis disappeared from the histological section but the picture of cytolytic hepatitis persisted and the functional disturbances present at the start of treatment remained unchanged. This supports the belief that subacute steatotic hepatitis is a cytolytic hepatitis with fatty infiltration The syndromes may regress slowly under appropriate medication and after elimination of the alcoholic toxin or they may develop into a mixed parenchymatous hepatitis preceding the cirrhotic process This development can be detected by the MacLagan and red colloidal tests sooner than by the bromsulphonphthalein test.

The place of publication of the periodicals appears in brackets preceding each abstract

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Angina Decubitus A Clinical Appreciation J S Watson *Ohio M J* 52 581-588 (June) 1956 [Columbus, Ohio]

The author *presents* the histories of four patients with *angina decubitus He* stresses the nocturnal (recumbent) *nature of the* episodes, the prolonged duration, the vasomotor phenomena (flushing), the activity of the patient, *and* the ineffectiveness of nitroglycerin He calls *attention to the* paucity of information regarding angina decubitus in modern text *books He* differentiates angina decubitus from angina of effort and from myocardial infarction by listing the characteristic aspects of each of these three conditions Angina decubitus *occurs in the presence of coronary artery* disease as well as in the presence of aortic valvular disease (aortic insufficiency) *As regards the* treatment, the response to a *low-sodium* diet is gratifying The etiology may be explained on the basis of salt and water retention accompanying subclinical *congestive* heart failure with diminished cardiac *output* and *markedly* diminished renal function Pituitary and adrenal cortical participation seems possible Exchange resins and acetazolamide (*Diamox*) were *not* used in the treatment of these patients, but they might be of value in the further elimination *of* sodium and water from the body *Heparin* was used *in one* patient, but the *effect could not be determined One* should not forget the guarded prognosis, at least during the period of transition, and the *unquestionable spontaneous* improvement that may occur no matter how the patients are treated

Disseminated Pulmonary Calcification Its Association with a Positive Reaction to Histoplasmin Antigen M H Joress and B P Bushueff New England J Med 254 1053-1058 (June 7) 1956 [Boston]

Antigen skin testing in the presence of disseminated pulmonary calcification shows a high prevalence of histoplasmin sensitivity Although infection with Histoplasma capsulatum occurs most frequently in the central states, a number of veterans have been *studied since* the end of World War II in the chest section of the *outpatient* department of the Veterans *Administration hospital*, West *Roxbury, Mass*, *in order to* determine *the significance of certain abnormalities that were noted* on the chest roentgenograms during service or at the time of separation The authors considered the disseminated calcifications in these young, obviously healthy veterans to be the end-result of previously active histoplasmosis A variety of designations had been used when the *abnormal shadows* were first noted in the service hospital or discharging *station*, such as "healed miliary tuberculosis," "sarcoidosis," "pneumonoconiosis," "*miliary* calcifications," and "arrested tuberculosis" In *studies on 20 veterans* with disseminated calcification, they ascertained the birthplace and the residence *before service*, findings on the induction films, exposure *to soil* dust before service, history of respiratory illness before or *during* service, whether the veteran had been exposed to a respiratory disease epidemic, whether *mycotic* infection was considered at the time of interpretation of the roentgenograms *during* the service, and whether the veteran could currently react to tuberculin, coccidioidin, and histoplasmin In 15 patients, tests were made to ascertain whether antibodies were still present in the blood serum The presence of antibodies was demonstrated in two patients 12 and 11 years after the initial episode of respiratory infection In the first case, considered "doubtful," the titer was 1 4, in the second, considered "positive," the titer was 1 14

The authors conclude that, although *infection* with Histoplasma capsulatum occurs *most frequently* in the central states, the *possibility* of this infection occurring in other locations should be kept in mind when the clinical history points to exposure to dust contaminated by the excreta of chickens, pigeons, *and* bats Residua of the infection may be located in hilar lymph nodes or may be seen as a granulomatous lesion in the lung, but they are most commonly found as disseminated calcification in a portion of a lung or, more frequently, throughout the entire parenchyma Antigen skin testing is paramount in differentiating infection due to Mycobacterium tuberculosis and H capsulatum Although complement-fixing antibodies are seldom demonstrated many years after the *initial* infection, *it is important* to examine the serum in suspected cases Few patients showing residual histoplasmosis have any knowledge of *having* experienced serious respiratory *illness* in the past Some are aware of *past* exposure *to* contaminated soil dust *Most of those* with healed lesions have no knowledge of past respiratory *disease* The clinician and roentgenologist must *maintain* a high degree of suspicion if the presence of active and particularly of inactive, phases of infection with H capsulatum is to be detected If it is kept in mind, this disease is less likely to be confused with calcific nodulation from other causes

Bed Rest in the Treatment of Pulmonary Tuberculosis W F Tyrrell Lancet 1 821-823 (June 2) 1956 [London, England]

In May, 1954, it was *possible to admit to* sanatoriums only *some of the patients with* pulmonary tuberculosis in Glasgow, the remainder were *treated as* outpatients From a public health viewpoint this situation was unfortunate, but it offered an opportunity of assessing the therapeutic value of bed rest It was decided *to admit to hospital every alternate* new patient in the *Northern area of the city* and *to treat* the *others* as ambulant outpatients *The* criteria for acceptance into the trial were that the patient (1) had *active* pulmonary tuberculosis, (2) was aged 14 to 54, (3) was not living in lodgings, and (4) was ambulant when first seen Those treated as inpatients were admitted to *the sanatorium within two weeks of* diagnosis and were kept on *strict rest in bed The outpatients* were encouraged to remain up and about, and all except five, who were treated similarly by their own doctors, reported to the hospital for injections of streptomycin Apart from the amount of exercise allowed, the inpatient and outpatient *groups* had identical *investigation* and *treatment* Altogether, 141 patients completed three months treatment, and 94 of these completed six months' treatment In these 94 patients, the chemotherapy consisted of 1 gm of streptomycin and 400 mg of isoniazid on the *same* day twice *weekly*, the remaining 47 patients, who have so far completed only three months treatment, received the same *chemotherapy* on five days each week

After three months' treatment, progress, *assessed* by reduction of erythrocyte sedimentation rate, sputum conversion, cavity closure, and over-all radiographic improvement, was as good in 70 ambulant outpatients as in 71 patients on strict bed rest *in hospital After six months treatment, no difference* was found between 45 *patients on strict bed rest in hospital* and 46 *ambulant outpatients as regards reduction* of erythrocyte sedimentation *rate, sputum conversion*, *and* over-all radiographic *improvement*, but cavity closure was commoner in the patients on strict bed *rest* than in the ambulant outpatients The author *suggests that, before* bed *rest* in the treatment of pulmonary tuberculosis is abandoned, it will be necessary to study the long-*term results* in a larger number of patients, but it seems that, if the results in this preliminary study are confirmed, patients who have ceased to excrete tubercle bacilli might be allowed *to resume* their everyday occupations much earlier than is *now generally* thought desirable In addition, patients with pulmonary tuberculosis might be allowed *much* greater physical freedom than at present, with resultant lessening of the burden *on* nursing staff and diminished tedium for the patients *Where domestic* conditions are suitable home treatment *could confidently* be carried out on an even larger scale than at *present*

SURGERY

Abdominal Pain Following Surgical Correction of Coarctation of the Aorta A Syndrome D M Ring and F J Lewis J Thoracic Surgery 31 718-724 (June) 1956 [St Louis]

Seventy-three patients with coarctation of the aorta were operated on at the department of surgery of the University of Minnesota, Minneapolis Eighteen patients in this group had significant abdominal symptoms and findings in the early postoperative period The patients were *divided into three groups*, depending on the intensity of the signs and symptoms The first group consisted of one female and nine male patients between the ages of 2½ and 34 years who complained of generalized abdominal pain during the first *three postoperative* days There was abdominal distention, gastric *dilatation*, abdominal tenderness ileus or vomiting Leukocytosis was present and was associated with mild fever These complications responded to restriction of oral intake, gastric suction, and intravenous administration of fluids A second group of four male patients between the ages of 4 and 36 years had difficulties that were similar but of a more serious nature Symptoms appeared in the first postoperative week and persisted for 7 or 10 days Recovery resulted in all from conservative treatment The third group consisted of four male patients between the ages of 3 and 46 years who underwent laparotomy within two weeks after surgical correction of the coarctation of the aorta A tentative diagnosis of appendicitis had been made in three In two patients, necrotizing panarteritis indistinguishable from periarteritis nodosa was observed with infarction of portions of the small intestine One of these patients died of a ruptured splenic aneurysm and the other recovered after resection of 38 cm of the small intestine In the third patient the laparotomy findings were negative, but he died one month later from a ruptured dissecting aneurysm of the thoracic aorta Only enlarged mesenteric lymph nodes were observed on laparotomy in the fourth patient, who subsequently recovered

The one common factor in all the patients was the sudden increase in pulsatile pressures in the arterial system distal to the coarctation *The signs and symptoms were confined to the* visceral areas subject to this increased pressure head and particularly to the structures supplied by the superior mesenteric artery The abdominal pain was possibly related to the arterial distention stimulating viscerosensory fibers in the vessel wall It seems that the patients with significant abdominal findings represented a varying pathological response to the elevated arterial pressure in the postcoarctation vascular system ranging from temporary functional disturbance to local lysis of overstretched medial muscular fibers vascular occlusion and tissue death Cardiovascular surgeons should be on the alert for this complication which deserves the term "syndrome There is no explanation for the preponderance of males among these patients

Bilateral Resection in Pulmonary Tuberculosis S Nishi A Sato M Iwabuchi and others J Thoracic Surg 31 672-685 (June) 1956 [St Louis]

Fifteen men and seven women between the ages of 18 and 40 years with pulmonary tuberculosis underwent bilateral resection at the National Okayama Sanatorium in Japan and were followed up for 8 to 24 months after the operation The extent of the lesion its site the thickness of the pleural membrane the movement of the diaphragm the condition of the bronchi and the patient s general condition were considered in selecting the patients for bilateral resection A separate bronchospirometric examination for each lung was carried out before the operation Bilateral resection was indicated in patients who did not respond to collapse therapy or in those in whom the response was doubtful, in those in whom thoracoplasty had previously been indicated but who also needed some surgical treatment contralaterally and in patients in whom the localized lesion was stable and had a diameter of more than 2 cm

Bilateral lobectomy was performed in 5 patients lobectomy and segmental resection in 7 and bilateral segmental resection in 10 Simultaneous bilateral segmental resection was performed in two patients The postoperative course was uneventful, without dyspnea or cyanosis In 13 patients two operations were done at intervals that varied from three to six months in 7 patients and were less than three months in 6 Operation should be performed first on the side with the larger focus, and, if the degree of the disease is about the same on both sides the anatomic relationship and the influence of the cardiac function should be considered The operation was usually performed first on the right side There were no postoperative deaths or bronchial fistulas Empyema occurred in one patient after the second operation but it was temporary and localized Reactivation of the focus in the contralateral side occurred after the first operation, and because of this the proposed area for resection in the contralateral side had to be enlarged Postoperative complications did not occur in the other patients Postoperative smears and culture tests yielded negative results in all patients except one, in whom the culture test gave a positive result Symptoms subsided in 10 patients, who have resumed their usual way of life, and the remaining 12 patients will be discharged soon to resume normal activities If the patients are selected for the operation with care, bilateral resection seems to be successful in returning these patients to a normal life

Surgical Management of Neoplastic Pulmonary Metastases W J Strieder New England J Med 254 1059 1062 (June 7) 1956 [Boston]

Statistical reports suggest that radiographic demonstration of increased density in the pulmonary field after the apparently successful extirpation of a primary growth elsewhere, may indicate another primary tumor which may be benign as in 4 of the 20 patients with whom this report is concerned In two patients the tumors thought to be metastatic from the breast, proved to be bronchial adenoma one was a hamartoma and another was a nonresectable primary adenocarcinoma of the lung Any demonstrable metastatic lesion may be a solitary one, and its extirpation may result in a cure The author discusses criteria for selection Age is not an important factor The evaluation of the pulmonary function by the usual ventilatory studies, as well as bronchospirometry, is important when the possibilities of total pneumonectomy and bilateral resection are entertained particularly in elderly patients who may have emphysema. Efforts should be made to exclude from operation patients with hopelessly disseminated disease Laminography of the lungs bone marrow biopsy, roentgenographic examination of the skeleton and acid and alkaline phosphatase determinations should be carried out routinely before operation is decided on The original lesion as well as the distribution of the pulmonary metastases should be taken into consideration Minor found that pleural involvement existed in about a third and involvement of the mediastinal lymph nodes in nearly a fourth of 77 patients with cancer of the breast Consequently a patient with a solitary" pulmonary metastasis from cancer of the breast with pleural effusion seems an unlikely candidate for resection Hypernephroma, on the other hand has a tendency to produce solitary metastases with long-term survival after resection. Resection of both upper lobes for metastatic lesions secondary to neurogenic sarcoma has also been known to produce long-term survival The author feels that total pneumonectomy might be indicated for a solitary metastasis so situated that only total pneumonectomy will suffice to remove it, provided pulmonary-function studies indicate that the procedure will be tolerated Resection of metastatic pulmonary lesions may be undertaken to provide palliation without hope of cure in complications such as hemorrhage and suppuration

Twenty-two resections of pulmonary tissues were carried out in 20 patients with proved metastatic pumonary disease There were 2 wedge resections, 2 segmental resections 15 lobectomies and 3 total pneumonectomies No conclusions can be drawn about survival time in relation to type of operation. It appears that lesser resections can be done for metastases in view of the fact that the pathways of extension in metastatic disease in the lung are less likely to be along the lymphatics than in primary neoplastic disease of the lung Although no hard and fast criteria can as yet be established for operations in metastatic pulmonary disease, the results of this series and others appear to justify the continued use of pulmonary resection in selected cases for metastatic neoplastic pulmonary disease.

The Significance of Pulmonary Coin Lesions P W Johnston and J A Weinberg West. J Surg 64 318-320 (June) 1956 [Portland, Ore]

Seven hundred forty cases of pulmonary coin lesions were collected from the literature, to which 44 cases of coin lesions from the Long Beach Veterans Administration hospital in California were added. A practical definition of a pulmonary coin lesion is that it is a round or oval-shaped solitary lesion, completely within the substance of the lung with fairly well-defined borders, free of complications such as pleural effusion atelectasis, or cavitation, and usually but not necessarily free of symptoms The study of these 784 cases showed that 39.2% of the coin lesions were malignant and 39% were granulomas Included among the malignant lesions were primary carcinoma of the lung, bronchial adenoma, primary sarcoma of the lung and metastatic pulmonary lesions Because of this high incidence of malignancy and chronic infection in coin lesions, and because the clinical history, physical examination and even special diagnostic procedures such as intradermal sensitivity tests, laboratory examinations of sputum, bronchoscopy, or roentgen techniques are of no real assistance in making the diagnosis, exploratory thoracotomy and diagnostic biopsy are advisable as aids to definite diagnosis and surgical therapy when indicated Pulmonary resection is very important from a therapeutic point of view for malignancy and for tuberculoma and to a lesser degree for other benign conditions The principles adopted should be the same as those universally accepted in treating discrete nodules of the breast

Sarcomas of Soft Tissues Pitfalls in Their Diagnosis and Management A Preliminary Report on 553 Cases C E Nelson, H C Prout and P H Deeb West *J Surg* 64 329 335 (June) 1956 [Portland, Ore]

A preliminary report has been presented on 553 cases of soft tissue sarcoma reported to the California tumor registry by two hospitals in Los Angeles The tumors were classified according to their tissues of origin as fibrosarcomas, sarcomas of muscle tissue adipose tissue sarcomas sarcomas of pheripheral nerves, malignant tumors of blood and lymph vessels synovial tissue sarcomas and undifferentiated and mixed cell types of sarcomas The largest group, composed of 230 cases, was that of malignant lymphomas The high incidence of benign soft somatic tumors and the rarity of sarcomas is no doubt responsible for frequent errors in the diagnosis and treatment of these growths Improper first attack on the tumor favors local spread and distant metastasis Biopsy is indispensable for accurate diagnosis and treatment Fibrosarcoma aside from the lymphomas, is the commonest form of sarcoma Its spread extends far beyond the visible limits of the tumor This requires the removal of the surrounding muscles as well as the entire fascial plane Although hematogenous spread is the usual means of spread, certain tumors notably rhabdomyosarcoma sarcomas of blood and lymph vessels and occasionally liposarcoma and fibrosarcoma, metastasize to lymph nodes

Irradiation therapy has a useful place in the treatment of some inoperable sarcomas and is usually the treatment of choice in lymphoblastomas, lymphocytic and giant follicular reticulum-cell sarcomas, and mycosis fungoides Embryonic liposarcomas may be quite radiosensitive It is imperative to have frequent periodic follow-up examinations, including x-rays of the chest, so that if metastatic lesions are found in the lungs lobectomy or pneumonectomy, which is of great palliative or even curative value, may be performed Two cases of fibrosarcoma in women aged 21 and 54 years, respectively, which illustrate the common pitfalls in diagnosis and treatment, are described In both patients clinical diagnosis was wrong and in neither was sarcoma suspected In the first patient, the initial treatment was inadequate because of an error in pathological diagnosis but even after the proper diagnosis had been made the surgical attack was still inadequate In the second patient the error lay in failure to make a rapid frozen section at the time of the first operation, thus delaying definitive treatment Nine months elapsed from the time the recurrent lesion in this patient was removed until another roentgenogram of the chest was taken and, although the lung metastasis was unilateral it had involved the parietal pleura by the time the second operation was performed

Acute Hemorrhagic Pancreatitis Following Biliary-Tract Surgical Procedures W G Diffenbaugh and E L Strohl A M A Arch Surg 72 931-941 (June) 1956 [Chicago]

Acute hemorrhagic pancreatitis is occasionally a tragic complication of upper abdominal surgery Such a catastrophe is probably due to vascular damage to the pancreas associated with some form of trauma to the duct of Wirsung or to the duct of Santorini The types of trauma to the pancreatic duct that may produce obstruction include (1) edema or hemorrhage following instrumental exploration of the distal common duct, (2) ligation or angulation of the ducts of Wirsung or Santorini, and (3) pressure of a long-arm T-tube or catheter that passes through the papilla into the duodenum A number of cases of acute hemorrhagic pancreatitis have been reported after the use of such tubes, and the authors present the histories of four additional patients, all of whom died, the diagnosis of acute hemorrhagic pancreatitis was confirmed at autopsy in all four patients

In a fifth patient, the sphincter of Oddi was divided Absorbable surgical (catgut) sutures were used to approximate the duodenal mucosa and the mucosa of the edges of the cut sphincter Twenty-four hours postoperatively there was severe pain At the end of 72 hours, it was apparent from the increased pulse rate, fall in blood pressure, and distention that some abdominal catastrophe had occurred Abdominal exploration revealed acute hemorrhagic pancreatitis with fat necrosis The gallbladder was greatly distended Cholecystostomy and drainage of the abdomen was carried out There was much drainage of flecks of necrotic pancreas, which persisted for four months Recovery occurred Sutures should not be used after sphincterotomy The suture may retain the edema and obstruct the pancreatic duct

Sphincter-Preserving *Operations for* Cancer of the Rectum Special Reference to the Incidence and Survival Rates R R Best and J A Rasmussen A M A Arch Surg 72 948 956 (June) 1956 [Chicago]

Sphincter-preserving operations are becoming more widely accepted for patients with carcinoma of the rectum and recto sigmoid area A lesion below the peritoneal floor and yet more than 5 cm above the external sphincter margin demands a different surgical approach from that required for a lesion that is more than 10 cm above the sphincter margin and at or above the peritoneal floor level For this latter lesion the rectosigmoidectomy no 1 procedure, which is an abdominal dissection, resection, and anastomosis, is the operation of choice When the lesion is below the peritoneal floor and more than 5 cm from the external sphincter margin, the rectosigmoidectomy *no* 2 procedure, an abdominal dissection with posterior resection and anastomosis, is the operation of choice

Observations are presented on 189 patients who were seen between October 1945, and Jan 1, 1953, and who had a diagnosis of cancer of the lower sigmoid, rectosigmoid, or rectum Of this number, 130 were private patients and 59 were observed at the university clinic These two groups are reviewed separately One of the 59 clinic patients refused treatment Fifty-four of the 58 were operated on, but 10 had an exploratory operation only, a colostomy, or a cecostomy Forty-four patients, or 81 4%, had resectable lesions but some of the resections were palliative only, because of evidence of distant metastasis A sphincter-preserving operation was performed on 26 patients and an abdominoperineal resection with sacrifice of the sphincter mechanism in 18 There was one death in the abdominoperineal group and two deaths in the rectosigmoidectomies with sphincter preservation group A rectosigmoidectomy no 1 procedure was accomplished in 20 patients Not many rectosigmoidectomy no 2 procedures were carried out on the patients at the university clinic Two of the clinic patients underwent rectosigmoidectomy no 3, a poor operation for cancer One hundred twenty-one of the 130 private patients were operated on There were 111 resectable lesions a 91 7% resectability rate A sphincter-preserving operation was accomplished in 84 patients, and an abdominoperineal operation was performed in 27 patients In the 84 patients with sphincter-preserving operations, the rectosigmoidectomy no 1 was performed in 63 instances In nine patients of this group the lesion was so extensive or liver metastasis so evident that the resection and anastomosis was merely a palliative procedure The rectosigmoidectomy no 2 procedure was carried out as a curative operation in 19 patients The rectosigmoidectomy no 3 operation was used in two of the private patients

The survival rates for two, three, four and five years in patients with rectosigmoidectomy operations with preservation of the sphincter mechanism are comparable to those for patients with abdominoperineal resections At the five-year period, this approximates 54% The mortality rate tends to be just a little higher for the resection and anastomosis procedures, although, if earlier deaths, when technical factors were not so clearly understood, are excluded, the mortality rate is practically the same Suture-line complications are commoner, but by posterior drainage and proper decompressive measures they are usually only of a temporary nature Sexual potency appears to be retained in about 75% of the patients following rectosigmoidec tomy with sphincter preservation, as compared with a loss of sexual potency in about 75% or more of patients with abdominoperineal resection While both surgeon and patient are gratified when a colostomy can be avoided the surgeon must not make any absolute promise to the patient before surgery about avoiding a temporary or permanent colostomy for this would compromise his good judgment as to the choice of procedure at the operating table

Blood Culture Studies of the Portal Vein F W Taylor A M A Arch Surg 72 889-892 (June) 1956 [Chicago]

According to Taylor it is generally believed that the liver rids the portal blood of many bacteria There is little doubt that the liver is capable of this sterilizing action in persons with acute infections or ulcerative lesions of the intestine but there is considerable doubt whether this action takes place in the healthy person and whether bacteria are normally poured into the liver by way of the portal vein Some years ago, the author attempted to prove or disprove the thesis that the portal vein normally carries bacteria. The cultures of portal blood taken at that time were sterile The means of obtaining these cultures were laborious Two factors induced the author to resume these studies (1) the practicability of placing a plastic tube in the portal vein from which random samples of blood could be removed for interval culture, (2) a recent report that was contrary to the author s earlier findings

A total of 167 portal-vein cultures were taken from 21 patients Of these 101 were aerobic and 66 were anaerobic In all but two of the patients the blood samples were obtained by means of the indwelling-plastic-tube method In these two, portal blood was obtained at operation before proceeding with a routine cholecystectomy All 167 samples were sterile It is believed that 9 and possibly all of the 10 positive cultures were due to contaminations The author concludes that blood carried in the portal vein is normally sterile The method of obtaining repeated blood samples opens avenues for further bacterial study of portal blood in persons with various intestinal infections

Pseudomembranous Enterocolitis Its Etiology and the Mechanism of the Disease Process J Van Prohaska, E T Long and T S Nelsen A M A Arch Surg 72 977-983 (June) 1956 [Chicago]

Increasing clinical evidence has been gathered during the past few years seriously implicating Micrococcus pyogenes (Staphylococcus aureus) as the etiological agent responsible for the often fatal surgical complication known as pseudomembranous enterocolitis This disease entity has been most frequently described as a necrotizing colitis or enteritis following major abdominal surgery in patients who were prepared for operation by the oral administration of antibiotics The authors believe that it is incorrect to associate this serious complication exclusively with abdominal operations or with the intestinal use of antibiotics The variety of conditions under which pseudomembranous enterocolitis appears prevents easy solution of the problem of its etiology Confusions stem from the observations that the disease sometimes follows surgical operations and sometimes does not at one time it is related to antibiotic therapy and at other times not The disease cannot be considered a definite entity until these opposing facts are made to fit into a pattern that can encompass all variations The authors present clinical and experimental evidence in support of the following contentions 1 Pseudomembranous enterocolitis is an infectious disease produced by M pyogenes 2 M pyogenes does not establish itself in an intestinal tract containing the usual bacterial flora 3 The shock and the fatal course of the disease are enhanced by the micrococcic enterotoxin 4 The effect of the enterotoxin may be counteracted by giving corticotropin (ACTH) a lifesaving therapy

Some investigators have designated erythromycin as an antibiotic that has a specific action against micrococci and therefore advised it as the only drug in the treatment of pseudomembranous enteritis This may be true, but in most instances the enteritis pursues a rapid downhill course so that there is no time to wait until erythromycin attains sufficient concentration to destroy the organism Even if this could be accomplished the host would still have to get rid of a quantity of residual enterotoxin If corticotropin is given the neutralization of the toxins appears to be immediate The erythromycin of course, should also be given for its lethal action on the micrococci, if they are sensitive to it. Benign lingering diarrheas appearing after antibiotic therapy are not to be confused with pseudomembranous enteritis or colitis These benign diarrheas are produced by a simple bacterial derangement of the colonic flora without the development of enterotoxin-producing micrococci

NEUROLOGY & PSYCHIATRY

Poliomyelitis in Missouri in 1955 An Epidemiologic Summary E A Belden Missouri Med 53 456-458 (June) 1956 [St Louis]

When the question of safety of poliomyelitis serum arose in April 1955 as a result of the occurrence of poliomyelitis in recently inoculated children in certain Western states a nationwide investigation of all cases of poliomyelitis was instituted As a result of the investigation in Missouri, the epidemiological data on poliomyelitis in Missouri in 1955 are more detailed and accurate than for any previous year Poliomyelitis occurred in 11 children who had been vaccinated against poliomyelitis The possibility of infection by the vaccine must be considered in three children in whom the poliomyelitis began within 28 days of vaccination One of these three children had the paralytic the other two the nonparalytic, form of poliomyelitis The available evidence indicated that in the patient with the paralytic form the poliomyelitis may have resulted from the vaccination but in the two with the nonparalytic form this does not seem probable The eight cases of poliomyelitis in vaccinated children occurring more than 28 days after last vaccination are classified as vaccine "failures" although all of them had received only one injection of vaccine prior to the diagnosis of poliomyelitis

In children between the ages of 6 and 10 years, the over-all poliomyelitis attack rate was four times as great and the attack rate of paralytic poliomyelitis was six times as great in the unvaccinated as in the vaccinated This represents a reduction of 84% in paralytic poliomyelitis in the vaccinated group Poliomyelitis virus was recovered from 38% of the patients with the paralytic form tested for it and from 19% of those with the nonparalytic form tested for it The rather low percentage of isolations in patients with the nonparalytic form points up the relative difficulty of making a firm clinical diagnosis in the absence of paralysis However, the recovery of virus in a significant number of nonparalytic and asymptomatic cases is confirmatory evidence of infection without paralysis The determination of serum neutralization (antibody) titers of paired serums was of little value in confirming clinical diagnoses This was largely because of the difficulties involved in obtaining the first specimen early in the disease and the second specimen two to four weeks later, when most patients had left the hospital The author believes that the examination of repeated specimens of feces for virus isolation and typing would be a more effective and practical aid in the diagnosis of poliomyelitis than neutralization tests on paired serums

The Recovery of Poliomyelitis Viruses from Fecal Samples of Poliomyelitis Patients and Household Contacts C A Miller and P Kamitsuka Am J M Sc 231 607-615 (June) 1956 [Philadelphia]

During the 1954 field trial of the poliomyelitis vaccine the virus research laboratory of the University of Kansas participated in the evaluation of the vaccine, testing more than 243 stool specimens from patients and household contacts for the presence of poliomyelitis virus The vaccine evaluation center had requested that studies be done on first, second, and third grade children who resided in the study areas and in whom clinical evidence of poliomyelitis developed Ninety-seven children were studied on this basis This report summarizes data on the recovery of poliomyelitis virus from fecal specimens and correlates these findings with the epidemiological findings Family infections due to poliomyelitis were clinically apparent in about one-third of the families studied. Symptoms in the different members of a family tended to appear concurrently Clinically apparent poliomyelitis developed most frequently (in 50%) in children 4 and 5 years old who were in contact with a patient who was known to have poliomyelitis The stool specimens of 79% of patients with the paralytic form of poliomyelitis yielded poliomyelitis virus, whereas this was the case in only 50% of the patients with the nonparalytic form, indicating perhaps that a number of these infections were caused by some agent other than poliomyelitis viruses One-third of all persons having household contact with a patient in whom poliomyelitis was clinically diagnosed were shown to have poliomyelitis virus in their stool specimens The virus carrier rate was much greater than this among (a) household contacts who had some symptom indicative of illness, (b) those who where exposed to a paralytic patient, and (c) those under 10 years of age Excretion of virus in fecal samples was at a high level for the first three weeks of convalescence, after which the recovery rate dropped sharply The percentage of asymptomatic household contacts excreting virus showed a decided peak three weeks after the first onset of symptoms in the household Among the household contacts, 80% of the virus carriers were free of symptoms of illness The administration of gamma globulin to household contacts appeared not to interfere with the demonstration of virus in their fecal specimens

GYNECOLOGY & OBSTETRICS

Prolapse of Fallopian Tube After Vaginal Hysterectomy Report of Three Cases W O Johnson J Kentucky M A 54 503-505 (June) 1956 [Louisville, Ky]

The author reports on three women in whom prolapse of the fallopian tube occurred after a vaginal hysterectomy The condition is not so rare as reports would indicate He lists the following as causal factors of prolapse of the uterine tube damage to the rectouterine pouch (cul-de-sac), poor condition of the tissues, postoperative infection, postoperative ectopic pregnancy, an interposition operation, inadequate closure with and without drainage, and hematoma The symptoms of prolapse of the uterine tube appear from one to four months after the operation, and consist generally of a persistent, profuse vaginal discharge and pain and tenderness in the dome of the vagina after long standing or on touching the dome of the vagina

The author considers the following method as the best treatment for the condition The patient is anesthetized After the vagina is cleansed, the prolapsed tube is pulled out as far as possible, cut off with a cautery or knife, ligated, and then allowed to retract into the dome of the vaginal vault It will then granulate, and the discharge will stop Some prolapsed tubes can be removed in the office by treating them repeatedly with cautery or by silver nitrate sticks until they granulate in and are covered with vaginal mucous membrane

The Hydrazinophthalazin Compounds in the Treatment of Hypertension in Obstetrics and Gynecology F Zunzani Minerva ginec 8 230-233 (March 15) 1956 (In Italian) [Turin, Italy]

Sixteen patients with pure hypertension or obstetric hypertension and 14 with essential or renal hypertension were treated with hydrazinophthalazin compounds The drugs were particularly effective in obstetric hypertension, essential hypertension of pregnancy, essential hypertension in general, and climacteric hypertension They had no effect on nephrogenic hypertension The values decrease after doses of 25 to 50 mg, which can be given at once or in small doses until a maximal dose of 200 mg per day is reached High doses do not have a greater hypotensive effect, but they make the effects of the drug last longer The effect lasts from 1 to 10 hours when the drug is given orally The maximal hypotensive value after a single dose was 50 mm Hg for the systolic pressure The mean pressure after the treatment was 30 mm Hg A value of 35 and a mean of 15 mm Hg was observed in the diastolic pressure Doses, length of effect, and hypotensive effect are not directly related, each is related to factors peculiar to each patient Side-effects such as headache, nausea, and tachycardia are also related to the sensitivity of the patient Apresoline has more definite side-effects (always present in patients with essential hypertension) Side-effects were marked in patients with heart disease and in patients with nephrogenous or arteriosclerotic hypertension Eclampsia did not occur even when pressure values were above 160 mm Hg The pulse rate increased in almost all patients Treatment must be prolonged up to a year to stabilize the hypotensive effect of the drugs The drugs can be used electively in the prophylactic treatment of gestoses

PEDIATRICS

Management of Hypothyroidism in Infancy and Childhood R E Cooke and E B Man Pediatrics 17 617-631 (May) 1956 [Springfield, Ill]

Studies were undertaken to evaluate the adequacy of therapy in infants and children with congenital hypothyroidism, with respect to both promptness in beginning the therapy and the adequacy of dosage Symptoms of hypofunction of the thyroid appeared during the first year of life, and it is assumed that all of these infants and children were born with some defect in function of the thyroid and had congenital hypothyroidism The 24 children studied ranged in age from 2 days to 11 years Hypothyroidism was suspected in these patients because of one or more of the following signs enlargement of the thyroid large tongue, furrowed brow, thick skin, puffy eyes, carotenemia, constipation, poor feeding, disturbance in growth, or psychomotor retardation In most cases roentgenographic examination of the bones and detailed psychometric examinations were carried out The children were treated with desiccated thyroid Determinations of the serum butanol-extractable iodine (BEI) levels were used as a basis for diagnosis and in most instances for regulation of replacement therapy In all patients for whom the serum butanol-extractable iodine level was determined before therapy, the values were significantly below the normal range for children and varied between 0 and 2 9 mcg per 100 ml After treatment with 90 to 240 mg of desiccated thyroid per day, the older children had serum butanol-extractable iodine values within or slightly above the normal range of 4 5 to 7 3 mcg per 100 ml The five hypothyroid infants, who were less than one year old, tolerated and required rapidly increasing amounts of desiccated thyroid that varied between 45 and 90 mg daily Early therapy with large quantities of desiccated thyroid is suggested to obtain optimal mental development It is obvious from these studies that the use of a laboratory procedure such as the determination of the serum butanol-extractable iodine level is essential in the early diagnosis and in the regulation of treatment of hypothyroidism in infancy and childhood

Sudden and Unexpected Death in Infancy and Childhood L Adelson and E R Kinney Pediatrics 17 663-699 (May) 1956 [Springfield, Ill]

In 1951, under the sponsorship of the U S Public Health Service, a program was organized in which the medicolegal agencies of Cuyahoga County, Ohio, of the Borough of Queens of New York City, and of Baltimore and Boston were designated to study sudden and unexpected deaths that occur without obvious cause in the first two years of life This report is concerned with the studies made in Cuyahoga County (population approximately 1,600,000) One hundred twenty-six consecutive cases of sudden and unexpected death in children between the ages of 10 days and 2 years were studied Anatomic and microbiological studies were carried out, and an investigation was made at the home of each child Both sexes proved equally vulnerable Eighty-five per cent of the children were less than 6 months old The peak incidence of unexpected death was at 2 months Ninety-nine children were found dead and 27 were observed to die The same variety and severity of anatomic lesions were found in both categories Sixteen children in the same age range who died rapidly after known lethal violence were studied as a control group Of those in the nontraumatic sudden death ("unexplained") series, 106 (84%) revealed microscopic inflammatory changes in one or more sites of the respiratory tract, and histological evidence of inflammatory disease in other organs was seen in many cases Acute hemorrhagic pulmonary edema was a common anatomic finding (82%) It was usually accompanied by visceral and cerebral congestion and hemorrhages Staining of the liver for glycogen, determination of the glucose level of the cerebrospinal fluid, and study of the adrenals for sudanophilia and birefringence indicated that these factors are without significance in sudden death in early life A variety of congenital and acquired abnormalities, the presence of which had been unsuspected, was demonstrated at autopsy Eleven per cent of the 126 children showed no anatomic abnormalities other than the circulatory phenomena No single bacterial organism or group of organisms was isolated with consistency from any site Attempts to isolate viruses were negative

Antemortem symptoms circumstances of death history of contact with infectious disease and history of repeated respiratory infection were without significance as to the cause of death Eighty children had histories of mild illness for 48 hours or less prior to death Fifty-three children had received some form of treatment during this interval Sixty nine children had histories of contact with infectious diseases Forty-one children had past histories of repeated respiratory infections The children came from every social level 65% had received good care while 35% had received poor care Many of the controls showed inflammatory disease in the respiratory tract similar to that seen in the natural death group as well as anatomic evidence of lethal trauma The inflammatory lesions are thus not incompatible with life Several hypotheses are offered in an effort to link microscopic inflammatory respiratory tract changes with hemorrhagic pulmonary edema and sudden death Anatomic and anamnestic evidence excluded mechanical suffocation by bedding The investigation revealed no evidence that disease of the thymus lymph nodes or spleen caused or contributed to the sudden and unexpected death Although 63% of the children had histories of mild symptoms prior to death there was nothing to warn of impending death The authors conclude that when an infant has died suddenly and unexpectedly, no statement as to the cause of death should be made without complete gross and microscopic studies and a thorough investigation of the scene and circumstances of death

A New Diagnostic Method in Allergic Disease A P Black Pediatrics 17 716-724 (May) 1956 [Springfield Ill]

These investigations were undertaken to observe microscopically the effect of allergens upon living warm blood cells of allergic children In the test described dried protein allergen and plasma from a sensitized or allergic patient are mixed with living leukocytes and platelets either from the patient or a non allergic donor The prepared slides are kept at 37 C and observed under the microscope If specific antibodies to the allergen are present in the plasma the polymorphonuclear leukocytes and platelets show toxic effects and the cells die within from 15 minutes to several hours whereas controls remain viable and actively motile This cytotoxic reaction has been observed with food pollen epidermal and inhalant allergens and shows such correlation with clinical sensitivity as to be a helpful guide in determining which allergens are likely offenders and which are innocuous in a particular case A positive reaction does not necessarily mean clinical sensitivity but, if the reaction is prompt and strong such sensitivity is likely If the reaction is negative clinical sensitivity has not been found except after anaphylaxis It is believed that the technique described and the observations reported constitute a new and useful diagnostic method in allergic disease

Some Observations on Headache and Eye Pain in a Group of Schoolchildren E L. Hughes and C E Cooper Brit. M J 1 1138 1141 (May 19) 1956 [London, England]

In 85 of 189 schoolchildren with headache and eye pain the pain was related to tender areas in the posterior neck muscles and particularly to the tip of the first cervical transverse process This type of pain was observed in some children who were only 5 years old It was often thought by the parents to be connected with the eyes and led to the unnecessary wearing of glasses in some patients Occasionally it persisted for years and gave rise to the excessive taking of aspirin In a few children it cleared up spontaneously while in most it responded to exercises relaxing the head and neck In order to steady the shoulder girdle the child was told to stand leaning forward a little with his hands resting on a chair or table low enough to enable the arms to be vertical and rigid, and to flop the head backwards and forwards and then round and round. In some cases the mother was instructed to rub the area over the "trigger point to help the relaxation These exercises were to be done every night, and also if headache threatened In most patients, the tender areas in the neck muscles together with the tenderness of the tip of the first cervical transverse process disappeared after this simple treatment. The basioccipital region seems to have received hitherto little investigation. Palpation of this region the adjoining neck muscles, and the cervical spine does not usually form part of a routine examination The authors believe that this region deserves systematic examination so that one may know more of its contribution to and connection with the origin of headache in childhood

Congenital Leukemia S Fischer Ugesk. læger 118 445-447 (May 3) 1956 (In Danish) [Copenhagen, Denmark]

Up to 1952, only 14 cases of congenital leukemia had been reported Inclusion of the cases that developed during the first days after birth doubles the number The course of the disease and the results of autopsy reveal the true nature of the disorder The leukemia is as a rule myelogenic The manifestations are universal, but most intense in liver and spleen Localization to the skin is frequent As a result of thrombocytopenia and damage to the liver, there is often a tendency to bleeding The infant is as a rule born at full term Nothing is known concerning familial disposition The case described was in a well-built full-term infant Delivery was normal Death occurred eight hours after birth About 40 evenly apportioned bluish-red or brownish-red subcutaneous tumors were covered by intact epidermis Microscopic examination showed leukemic infiltration everywhere The tissue anoxia was due to the conglomeration of leukemia cells in the arterioles and capillaries and the related increase in peripheral resistance The mother s blood picture was practically normal

DERMATOLOGY

Tinea Pedis in General Practice W Gould and M Schwartz Practitioner 176 670-673 (June) 1956 [London England]

The major problem of tinea pedis is that of relapses, particularly after a period of hot weather The authors selected a naphthylmethane disulphonate (penotrane), which is available as an aqueous solution (0 1%) a jelly (0 1%) a tincture (0 1%) containing 50% alcohol or a dusting powder (0 4%) The patients were instructed to observe strict foot hygiene involving twice-daily foot washing with separate towels avoiding contact between bathroom floor and mats and the bare feet and daily changing and washing of socks The powder was used throughout treatment by dusting on to the feet and into the socks and shoes Twice daily morning and night, either the solution jelly or tincture was used The jelly was applied with gentle massage the solution and tincture were applied with swabs of cotton-wool and allowed to dry before dusting the feet with powder In most cases the solution was used initially with the powder, as evaporation of the lotion assisted in drying and hardening any sodden white skin If continued application of the solution tended to produce excessive drying the emollient jelly was used instead to prevent the skin from becoming brittle and scaly, but the solution was again applied at the first sign of any renewed sogginess

Of 45 patients treated with penotrane 36 obtained excellent or good results, 7 fair results and 2 no result There were no relapses throughout the summer in any of the patients who had successfully completed treatment by or before May, 1955

Herpes Gestationis Treated with Hormones F Gianotti. Gior ital dermat. e sif 47 61-68 (Jan -Feb) 1956 (In Italian) [Milan Italy]

The author reports on the treatment of four cases of herpes gestationis Good results were achieved by correcting the various hormones of the hypophysis-ovary-placenta system, which previously showed deviations from normal The dermatosis always occurs after the fifth month of pregnancy except that it may occur earlier in subjects who have already had it during previous pregnancies Recurrence of the disease after delivery is common Cutaneous or subcutaneous edema and leukocytosis are always present. Erythrosedimentation increases because of the marked imbalance in the various components of the blood The author excludes isoimmunization with the Rh factor as an etiopathogenetic factor, only one patient had a negative Rh but her husband and son were also Rh negative The dermatosis always occurs in women with marked endocrinologic deficiency Oligomenorrhea is the first evidence There is an abnormal growth of hair Spontaneous abortions or premature abortions for no apparent cause are frequent. Hyperthyroidism is present at times The value of estrogens excreted in the urine during pregnancy is high but returns to normal after pregnancy The excretion of gonadotropin is high, in one patient in the seventh month of pregnancy the value reached 140,000 rat units All patients treated by the author gave birth to live infants The dermatosis disappeared in from 10 to 15 days

PATHOLOGY

L E and L E-like Cells A Morphological Study E N Gouldin and L W Diggs South M J 49 560-566 (June) 1956 [Birmingham, Ala]

Smears of the buffy coat of defibrinated blood of patients with systemic lupus erythematosus were made at 15-minute intervals after collection The first change observed was a pyknosis of the nucleus This was followed by a swelling of the nucleus, a disappearance of interlobar filaments, and a loss of distinct chromatin markings The nuclear alteration in most of the cells was symmetrical, producing lobes having a smooth or homogeneous appearance In other cells the nuclear alterations were asymmetrical, often involving one portion of the nucleus more than others and producing a flaky or lumpy nuclear appearance The cytoplasm disintegrated in association with the more advanced nuclear changes The mass of altered nuclear material was phagocytized, usually by other neutrophils The phagocytosis of the smooth and homogeneous nuclear masses produced the classical L E inclusions as described by Hargraves and associates, whereas the phagocytosis of the flocculent or lumpy masses led to the production of L E-like inclusions, which cannot be distinguished from those seen in many nonsystemic lupus erythematosus conditions The L E-like cells differ from the typical L E cells in that the inclusions are not smooth and homogeneous but are unevenly stained and have residual chromatin structures L E-like cells frequently have prominent and dark margins, whereas typical L E cells have little or no peripheral condensation of chromatin

With the morphological features of both the L E and L E-like cells in mind, the cases of 13 patients with systemic lupus erythematosus, 8 of which were confirmed by autopsy, were studied The number of L E cells, L E-like cells and rosettes in relation to the neutrophils in L E preparations obtained from these patients varied from 0 6 to 13 4 L E cells per 100 neutrophils There was poor correlation between the number of typical L E cells, L E-like cells, and the number of rosettes In smears of buffy coat of blood from eight patients with conditions other than systemic lupus erythematosus who had demonstrable L E-like cells, rosettes were demonstrable in four Cells indistinguishable from the typical L E cells were observed in one patient with rheumatoid arthritis The so-called L E cells are not specific for systemic lupus erythematosus The reliability of the diagnosis is increased in proportion to the number of typical L E cells seen The diagnosis should be made with the aid of combined laboratory and clinical findings and not with the aid of morphological studies alone The reports of the L E preparations should state the number of L E and L E-like cells per 100 neutrophilic leukocytes, based on the examination of 300 or more leukocytes

On Diagnosing Cancer Histologically W W Park Lancet 1 701-704 (May 19) 1956 [London, England]

The pathologist giving a histological diagnosis of cancer is too often regarded as a dispenser of absolute truth The wide use of, and faith in, the term "histologically proved" is evidence of this attitude A definite diagnosis of cancer can be made when the alterations in tissue pattern are obvious, and the correlation between these morphological alterations and subsequent death is very high When a diagnosis of cancer is made at a low level of clinical correlation it is extremely difficult to know how close to the truth we are for the obvious reason that it is almost impossible to distinguish between early diagnosis and wrong diagnosis If a lesion, erroneously diagnosed as cancer, is completely removed, the records will wrongly show that a cancer has been "cured" If, on the other hand, the histologist has a high diagnostic threshold for cancer, a truly malignant lesion may be diagnosed as "not cancer" The pathologist's difficulty is that he must try to visualize the earliest stages of those abnormal tissue patterns that, when at their maximum in the "obvious" case, form unmistakable evidence of atypical and excessive growth of cells These patterns are manifest as (1) cell polymorphism accompanied by a varying degree of mitotic activity, and (2) the property that we call "invasiveness" Neither of these properties can be depended upon absolutely

It may be objected that a proper and comprehensive opinion on a section cannot be given without full clinical data This is true, but the time for the histopathologist to read the clinical data is after he has assessed the section, not before Fore knowledge of the clinical data introduces into the mind such a bias that some degree of prejudgment of the section is almost impossible to avoid The self-discipline involved in "blind" examining has the humbling effect of making the histologist realize how helpless he can be without information about site, age and other clinical details The pathologist should persuade the clinician to provide as much clinical data as possible, since, usually, the more help the pathologist receives, the more he can give However, the pathologist should always examine the sections before he reads the clinical data The term "histologically proved," when applied to cancer, is admissible only if "proved" is used in its original and now almost obsolete sense of "tried tested, or assessed" Its equation with "proof" in the legal sense, with the implication that certain objectively defined, specific criteria have been satisfied, is not justifiable

Mixed Staphylococcal Infections The Development of Penicillin-Resistant Strains R W Fairbrother Lancet 1 716-718 (May 19) 1956 [London, England]

While the origin of penicillin-resistant strains of Micrococcus (*Staphylococcus*) pyogenes var aureus has not been satisfactorily explained, it has been firmly established that (1) the resistance of naturally occurring strains of this variety of micrococcus to penicillin is due to the production of the enzyme penicillinase, and (2) this enzyme is not produced by strains rendered resistant to penicillin in the laboratory Thus there are two mechanisms whereby resistance to penicillin is developed The author deals here with only the naturally occurring penicillin-resistant strains, i e, the producers of penicillinase It has been found that these strains are unstable The present investigation is a continuation of the study of the development of variant strains Penicillin-sensitive strains of M pyogenes var aureus proved to be coagulase-positive, were inhibited by 1/16 to 1/32 unit per milliliter of penicillin, gave a clear zone round the penicillin disks, and did not produce penicillinase Penicillin-resistant strains were coagulase-positive, produced penicillinase, did not give a clear zone round the penicillin disks and were not inhibited by at least 10 units per milliliter of penicillin

Of 550 strains of M pyogenes var aureus recently isolated from infections, 312 (57%) were penicillin-resistant Previous figures for the same hospital were 42% in 1950 to 1951 and 57% in 1953 to 1954 The incidence of penicillin-resistant strains among outpatients was 37% Penicillin-sensitive and penicillin resistant strains with the same phage pattern were isolated from the same lesion on 11 different occasions this suggests a common origin for these organisms Penicillin-sensitive variants were readily obtained from penicillinase-producing strains by growth at 44 C Attempts to obtain penicillinase producing strains from naturally occurring penicillin-sensitive strains were unsuccessful Such variants were, however, produced by two of eight apparently penicillin-sensitive strains obtained by growing penicillinase-producing organisms at 44 C It is suggested that M aureus formerly led a wild existence in which it produced penicillinase, and that this function was later largely, but not entirely, lost by prolonged adaptation to the human nares

RADIOLOGY

Malignant Tumors of the Mouth R Varela Chilese, B Dosoretz and A Torres Rojo de Feliu Rev Asoc med argent 70 39-50 (March 15-30) 1956 (In Spanish) [Buenos Aires, Argentina]

One thousand, five hundred thirty-five patients with malignant tumors were observed in the oncology ward of the Hospital Rivadavia of Buenos Aires in the period from 1948 to 1955 The tumor was located either in the head or in the neck in 325 patients and, of these, in the nasopharynx in 16 cases Most of the patients were between the ages of 31 and 50 years The patients stated that they had had nose and ear symptoms for more than two years The tumor was located in the right, left, or middle posterior region of the nasopharynx in seven cases on the right or left lateral wall in four cases and on the right, left and posterior walls of the structure in five cases A biopsy was made in 10 cases It revealed a reticulosarcoma in two patients a lymphoepithelioma and an undifferentiated carcinoma in eight, and a pavement cell carcinoma in two The treatment consisted of roentgen radiations alone or with radium The results of the treatment were poor and none of the patients survived for more than five years Eleven patients died between a few months and two years after treatment The five patients who are living with or without symptoms of cancer either are under treatment or have had too short a period of observation for conclusions to be reached The poor results in this group seem to be due to late diagnosis and insufficient doses and/or poor technique of radium and roentgen therapy To obtain better results the following schedule of treatment is planned The tumors are divided according to type into two groups Tumors of the first group (reticulosarcoma lymphosarcoma lymphoepithelioma and undifferentiated epithelial tumors) are highly malignant, give early metastases and are of high radiosensitivity *Regional roentgen therapy* alone or combined with local application of radium is used in the treatment of this type Regional roentgen treatment is given in a block from the base of the cranium to the base of the neck The dose is 3 000 to 3 500 r in three weeks on fields varying between 10 by 15, 10 by 20 or 15 by 20 A very important technical problem is the protection of the eyes which are included in the treated zone

Tumors of the second group (differentiated and semidifferentiated pavement cell carcinoma) have moderate radiosensitivity The daily dose of roentgen rays is 200 or 300 r in each field, which is radiated on successive days until a total dose of 3,000 to 3 500 r per field has been given By the directed beam method the dose for the whole tumor (tumor-dose) is 5 500 r in three weeks or 6 000 r in five weeks Circular fields of 5 to-6-cm diameter are the most convenient. The intracavitary radium method consists of placing a lineal source of radium in the nasopharynx Radium in the nasopharynx can be used as the only treatment in early spinocellular *carcinoma or in* combination with regional roentgentherapy in undifferentiated or semiundifferentiated carcinoma The dose of radium intracavitarily placed is 6 000 r in a week by the British method and 8 000 r in a week by the American method The calculations of the American method are made by *Paterson-Parker s* rules

Varicella Pneumonitis Z F Endress and F R Schnell Radiology 66 723-726 (May) 1956 [Syracuse N Y]

A 32-year-old woman had contracted chickenpox from her daughter At the onset of her illness four days before hospitalization she had experienced a sore throat coincident with the rash and a hacking cough During the second and third hospital days new lesions appeared on the skin and oropharynx accompanied by increasing soreness of the throat and hacking cough only partially controlled by medication By the fourth day the cough became almost constant. Multiple coarse and fine wheezes and rhonchi developed throughout the entire chest together with fine crepitant rales and frank signs of consolidation at the left base A chest film taken showed extensive inflammatory changes in all five lobes The patient was placed in an oxygen tent and antibiotics were increased to 600,000 units of penicillin and 0 5 gm of streptomycin twice daily Gradual improvement followed and the patient was discharged from the hospital on the 14th day The authors comment on pneumonia as a complication of chickenpox, pointing out that, although chickenpox is regarded as the mildest of the various exanthematous diseases of childhood, it can produce serious illness and even death The incidence of complications at the present time is not known but before the days of sulfonamides and antibiotics it was estimated at about 5% Pneumonia was a complication in 21 of 2 534 cases of chickenpox reviewed in 1935, and 8 of these 21 cases were fatal, but microscopic examination revealed no evidence of virus pneumonia Of the 18 cases of varicella pneumonia reported during the 15 years between 1940 and 1955 7 had a fatal outcome

Pneumonitis caused by the varicella virus is a rare but serious complication of chickenpox Roentgenographically it produces a widely disseminated nodular infiltration involving all five lobes with onset early in the second week of the illness The lung infiltrates vary in size and shape they are produced by confluence of numerous small areas of consolidation surrounding small foci of necrosis caused by the virus Initial clearing is rapid and partial subsequent regression is slow a period of months elapsing before a normal appearance is finally reached Clinically severe dyspnea. cyanosis and hemoptysis are commonly associated with the condition Nephritis encephalitis hepatitis, pericarditis orchitis and laryngitis may accompany the pneumonia

Surgical and Radiation Treatment of Carcinoma of the Breast A New Concept B V A Low-Beer and H G Bell Am J Roentgenol 75 1162-1168 (June) 1956 [Springfield, Ill]

The existence of distant metastases is the problem in cancer of the breast from the moment the tumor is first recognized It is obvious therefore that, in the treatment of cancer of the breast, when the aim is eradication of the disease the problem is not whether simple mastectomy is preferable to radical mastectomy nor how radical a radical mastectomy should be Neither is it fruitful to argue as to whether preoperative irradiation is to be preferred to postoperative irradiation It is essential to realize that to limit treatment efforts to the primary lesion and to the first line of extension i e axillary mediastinal subclavicular and supraclavicular lymph nodes is to espouse an entirely erroneous basic concept of the treatment that is doomed to result in failure in 90±3% of patients Primary treatment of cancer of the breast must be directed not only to the local area of involvement but to any cancer tissue remote from the immediate region of the involvement.

Radiophosphorus (P^{32}) was therefore considered as a possible internal, selective cancerocidal agent and, since 1951 80 women and one man have been treated with P^{32} in conjunction with surgery and regional roentgen irradiation In 55 patients the primary lesion was located in the outer half of the breast, in 14 patients in the inner half and in 12 patients in and around the nipple Seventy-four patients had radical mastectomy and seven had simple mastectomy The postoperative staging was as follows 30 patients with stage 1 24 with stage 2 22 with stage 3 and 5 with stage 4 carcinoma. Up to July 1953 (22 patients) postoperative irradiation treatment including P^{32} was not started before the eighth postoperative day and no patients with stage 1 carcinoma were included. Since September 1953, all patients with carcinoma of the breast, including stage 1 have been treated by surgery combined with internal and external irradiation therapy and the first dose of P^{32} has been administered to the patient on the operating table as soon as the definite diagnosis has been made from a frozen section Radiophosphorus treatment consisted of intravenous administration of from 20 to 30 µc of P^{32} per kilogram of body weight, and was given at intervals of two or three days until the bone-spleen-liver compartment daily dose reached a level of 15 to 20 gm r/gm This dose level was usually reached in from 14 to 20 days and was maintained by additional doses for another 10 or 12 days The cumulative dose was estimated to be around 800 to 1,000 gm r/gm in the bone-spleen-liver compartment and around 75 to 100 gm r/gm in the soft tissue compartment. The total dose in millicuries varied between 12 mc and 18 mc in about 30 days, depending on the patient s weight Simultaneous roentgen treatment consisted of irradiation of the axilla, the supraclavicular areas and the mediastinum with tissue doses in the range of 4 000 r delivered in 35 days

Of the 22 patients treated with surgery in conjunction with roentgen rays and P^{32} between July, 1951, and July, 1953 five (two with stage 2 and three with stage 3) died Of the 59 patients who were treated since July 1953 one patient (stage 3) had died up to the time of the writing of the paper In every patient treated with P^{32}, marked depression of all blood elements was observed by the end of the treatment course Thrombocytopenia was particularly marked, but there was no obvious bleeding tendency Within four weeks after the conclusion of the treatment, there was an almost complete recovery of the hematopoiesis Patients over 70 years of age should be carefully selected for P^{32} treatment. It would be premature to draw conclusions at this time with respect to the efficacy of the authors' method of treatment Although this method cannot insure a 100% cure rate for cancer of the breast, there is every justification for a thorough exploration of its potentialities in the primary treatment of breast cancer

The Danger of Cancer from Thorotrast as a Diagnostic Medium E Budin and J Gershon-Cohen Am J Roentgenol 75 1188-1193 (June) 1956 [Springfield, Ill]

Thorotrast, a colloidal solution of thorium dioxide, is a radiopaque agent that is known to be radioactive and has been shown by experimental work to be carcinogenic The American Medical Association Council on Pharmacy and Chemistry and other authorities have repeatedly warned against use of thorotrast because of this risk Despite these facts, thorotrast is still used today for many diagnostic procedures in radiology, recommended in current medical literature, and advertised for multiple uses The limited clinical evidence of its carcinogenicity is chiefly the result of the long latent period between the injection of thorotrast and the appearance of malignant changes This accounts for the relatively few cases of malignancy so far reported A direct cause and effect relationship is difficult to prove even when the malignancy develops at the precise site of residual retention Two illustrative cases are described In one of these, carcinoma of the breast occurred in a 43-year-old woman 17 years after thorotrast had been injected into the ductal system of the patient's right breast for roentgenographic studies followed immediately thereafter by the surgical removal of a fibroadenoma Recent roentgenograms made during preoperative studies revealed changes suggesting the presence of a malignant lesion surrounding residual thorotrast A radical mastectomy was performed, and roentgen examination of the biopsy specimen showed the major portion of the residual thorotrast concentrated precisely at the site of the tumor The surgical specimen also revealed the presence of thorotrast in several axillary lymph nodes An autoradiograph showed the tracks of alpha particles arising from the region of the malignant cells The other case was that of a 65-year-old woman in whom a barium enema revealed a constricting lesion of the splenic flexure suggesting malignancy Cancer appeared in the colon adjacent to the spleen, which was small and densely studded with opaque material Residual thorotrast was suggested and confirmed both by a positive history of a thorotrast injection 16 years previously and by the histological appearance of the microscopic sections

Thorotrast should not be used at all in patients for whom a satisfactory alternative is available, especially in such procedures as retrograde pyelography, arteriography, mammography, and myelography The use of thorotrast in cerebral angiography should be sharply restricted, and the replacement of thorotrast in cerebral angiography by recently developed radiopaque agents should be accelerated

ANESTHESIA

The Choice of Anesthetic Used in Cesarean Section An Important Factor in Maternal and Fetal Prognosis A Russo and I Volpi Minerva ginec 8 197-214 (March 15) 1956 (In Italian) [Turin, Italy]

The authors discuss the choice of anesthetic to be used in cesarean section in relation to the maternal and fetal prognosis Ether narcosis is good for the mother and not for the fetus Ether narcosis mixed with gas is good for both Spinal anesthesia is the least dangerous, but its indications are difficult to determine It is useful when the clinical status of the mother is good and the cesarean section is performed for the benefit of the fetus Spinal anesthesia can be used in patients with disease of the respiratory system or with acute and normotensive toxemia It is not indicated for patients with chronic hypertension and heart disease They should receive local anesthesia, which is also indicated for patients with diabetes and preeclampsia Local anesthesia is always better for the fetus The treatment of 329 babies born by cesarean section is discussed A first group of 69 patients was studied from 1940 to 1948 A second group of 260 patients was studied between 1949 and 1954 In the first group, ether narcosis was used in 59 4% of the cases In the second group, spinal anesthesia was used in 48 4% of the cases and mixed narcosis in 31 1% The mortality rate of mothers was 2 8% in the first group and 0 38% in the second The anesthetic per se was never fatal The mortality rate of the babies was 2.8% in the first group and 1 1% in the second Narcosis with barbital was fatal in 4 7% of the cases, mixed narcosis in 2 4%, ether narcosis in 2 3%, and spinal anesthesia in 0 79% Other types of anesthesia were not fatal Ether anesthesia was associated with the highest frequency of reanimations 12 1% in the first group and 7 1% in the second Spinal anesthesia, on the other hand was associated with the lowest frequency only 5% of the cases

PHYSIOLOGY

The Effect of Glucagon on Carbohydrate Metabolism in Normal Human Beings P K Bondy and L R Cardillo J Clin Invest 35 494-501 (May) 1956 [New York]

Since the isolation of glucagon (hyperglycemic-glycogenolytic factor) from the pancreas and the demonstration that it is released in appreciable amounts into the blood stream, there has been much speculation about the possibility that diabetes mellitus may result from an imbalance between secretion of insulin and glucagon The present investigation was undertaken to discover whether glucagon could produce an elevated blood glucose concentration with inhibition of glucose utilization, since this combination is usually observed in diabetic patients The authors gave glucagon intravenously to normal human subjects It produced a rapid rise of arterial and venous blood glucose concentrations, with increased arteriovenous glucose differences No change in peripheral blood flow occurred When given by constant intravenous infusion for two hours, glucagon caused a rise of both arterial and venous glucose concentrations with increasing arteriovenous glucose differences for about one hour, after which the arterial glucose level fell Toward the end of the test period hypoglycemic symptoms often occurred The falling glucose concentration could not be prevented by larger doses of glucagon Over the two-hour period serum inorganic phosphate and plasma and whole blood alpha amino nitrogen concentrations fell steadily There was no change in blood ketone body concentration In all respects, the effects of glucagon were similar to those of doses of glucose that produced comparable arterial glucose concentration curves and different from those of growth hormone These observations give no support to the concept that glucagon is diabetogenic, since no evidence was obtained of reduced glucose utilization It is more likely that, in the intact organism, glucagon works synergistically with insulin to release glucose from the liver, thus making it available for the peripheral utilization promoted by insulin

Effects of Dividing the Pituitary Stalk in Man D S Russell Lancet 1 466-468 (April 21) 1956 [London, England]

The author calls attention to the divergent results of dividing the pituitary stalk during intracranial operations On the basis of three case histories she attempts to reconcile these divergent results in the light of recent investigations on the intimate vasculature of the pituitary body In the first two patients necrosis of the anterior lobe resulted from the operative division of the pituitary stalk In the third patient a similar necrosis was induced by carcinomatous permeation of the portal vessels Acute deficiency of the anterior lobe preceded death in all three cases, the length of survival being similar in the two who did not receive hormone therapy None of the three patients had any evidence of diabetes insipidus It is recognized, however, that an intact anterior lobe is essential to the development of this syndrome, though precisely how this operates is controversial Observations on the third patient demonstrated the essential part played by the portal vessels of the stalk in maintaining the nutrition of the anterior lobe The extent to which necrosis of the anterior lobe results seems to depend directly upon the completeness with which the portal vessels are interrupted and hence on the level of division It is suggested that division of the stalk at its junction with the gland may be as effective clinically as total hypophysectomy

BOOK REVIEWS

Textbook of Medical Physiology By Arthur C Guyton M D Professor and Chairman of Department of Physiology and Biophysics University of Mississippi School of Medicine Jackson Cloth $13.50 Pp 1030 with 577 illustrations W B Saunders Company 218 W Washington Sq Philadelphia 5 7 Grape St. Shaftesbury Ave London W C.2 England, 1956

Attractive in outward appearance, this book proves on reading to be equally engaging in content. Intended for the use of medical students in their physiology courses it gives the essentials of each subject in a forthright, concrete, and unaffected manner that should be appreciated equally by the neophyte and by the mature reader Physicians prescribing anticoagulants, relaxants, and diuretics wish occasionally for a book that will bring them up-to-date on the fundamentals of such subjects as blood-clotting feed-back mechanisms in the brain, and reabsorption in the kidney For this purpose they should find this book excellent In addition to the author s pleasing style, the arrangement of the pages, especially the use of the double column, appeals to the eye and helps to keep the reader oriented The divisions of physiology are taken up in the following order cellular physiology, nerve and muscle, circulation body fluids and the kidneys, hematology, respiration, neurophysiology, special senses, digestion, metabolism, and energy, endocrinology, including reproduction, and radiation. There is a judicious use of illustrations Each chapter ends with an adequate bibliography, and the index is good

The misgivings expressed in the preface in regard to the advisability of a one-man attempt to write a physiology text" are forgotten as one proceeds through this well-integrated book that shows such a balanced command of the entire field Various items will need future attention. An important one is the pulmotor, the dangers of which are set forth on page 444 This expresses the attitude inculcated in the United States by the late Yandell Henderson, who was imbued with a great fear of overventilation and acapnia His attitude was not shared by European physiologists, who continued to gather data on safe limits for positive and negative pressures for devices of this kind and were not afraid to apply them Henderson s fear of overventilation resulted in continued use of Schafer s prone pressure method in the United States long after it had been abandoned in various European countries in favor of the more effective Holger Nielsen method This latter has now been adopted here, and it is described in this book appropriately as the back-pressure arm-lift method It is to be hoped that the paragraphs on the pulmotor will be correspondingly modernized in a future edition The section on physiological optics can be made more helpful by adding details about the reduced or schematic eye, especially the concept of the nodal point On page 23 the word undamped" would be clearer than driving as applied to various kinds of oscillations There is much in this book to remind one of the great Landois-Rosemann Physiologie des Menschen," a one-man attempt that has continued through 26 editions It is to be hoped that the author of the present work will be able to continue similarly, perfecting and polishing his book into something equally magnificent

The Laboratory Diagnosis of Coagulation Defects By Pietro de Nicola M D Associate Professor Department of Internal Medicine University of Pavia, Pavia Italy Publication number 269 American Lecture Series monograph in Bannerstone Division of American Lectures in Pharmacology Edited by Chauncey D Leake Ph.D Revised translation of La diagnosi dei difetti di coagulazione Biblioteca Haematologica, Pavia, 1954 Cloth $7 50 Pp 240 with 62 illustrations Charles C Thomas Publisher 301-327 E Lawrence Ave *Springfield, Ill.* Blackwell Scientific Publications, Ltd 24 25 Broad St., Oxford, England Ryerson Press 299 Queen St W Toronto 2B Canada, 1956

This book is based on the author s experience first as assistant to *Prof Paolo Introzzi* at the University of Pavia and later in the United States during the tenure of a United States government fellowship administered by the Institute of International Education It is a revised translation from Italian Spanish and German editions have appeared or are in progress Several books dealing with disturbances of hemostasis have appeared recently This one is an attempt to present a condensed summary of essential current knowledge of this highly controversial and largely incomplete subject In the first of five chapters on physiological background, the new concepts of blood coagulation and the various factors involved are discussed Chapter 2 deals with the general diagnosis of coagulation defects This is elaborated in greater detail in chapter 3, on the special diagnosis of such defects Here each known abnormality is analyzed with the help of up-to-date information and methodology The technical section in chapter 4 gives a brief and well-organized outline of the equipment standard solutions, and reagents required in practically all modern techniques The last chapter is entitled Conclusions, although actually it is a summary of the factual information presented in the preceding pages

The main feature of the monograph is its brevity In a field as complex and unsettled as blood coagulation, brevity may not be so much a blessing as in a more settled area of our knowledge The advanced student of the subject will find in the book a valuable and interesting condensed version of the current status of technical aspects of the laboratory diagnosis of coagulation defects The beginner should also profit and be stimulated, but he may also be misled by a tendency to oversimplification, especially in the technical section Some procedures are made to appear much simpler and less time-consuming than they are There are occasional inconsistencies, such as the statement on page 14 that PTA is not adsorbed with barium sulphate and other adsorbents," whereas in table 7 it is listed as being adsorbed. On page 98, k and ma values are discussed but are not explained there or elsewhere A few examples of defective translation (the translator is not named) were noted "It has been assumed that clot retraction takes place also in vivo, in correspondence of intravascular clots" (p 33) "The values are less and less reproducible the longer become the clotting times" (p 47) "This finding is observed only in a few cases partly because of technical reasons, and also for theoretical implications" (p 71) There is also much evidence of careless proofreading These defects add to the difficulties already inherent in the subject matter and detract from the usefulness of the book. It is not a book for the uninitiated, nor is it suitable for exact information, as stated in the preface

Tumors of the Skin By Herbert Conway B.S M.S M D., Professor of Clinical Surgery Cornell University Medical College New York. Publication number 270 American Lecture Series monograph in Bannerstone Division of American Lectures in Surgery Edited by Michael E De Bakey M D Professor of Surgery and Chairman of Department of Surgery Baylor University College of Medicine Houston Texas and R. Glen Spurling, M D Clinical Professor of Surgery University of Louisville Louisville Ky Plastic Surgery *Division* Editor James Barrett Brown, M D Professor of Clinical Surgery Washington University School of Medicine, St. Louis. Cloth $13 50 Pp 267, with 178 illustrations Charles C Thomas Publisher, 301-327 E. Lawrence Ave Springfield, Ill. Blackwell Scientific Publications Ltd. 24 25 Broad St., Oxford England Ryerson Press, 299 Queen St W , Toronto 2B Canada, 1956

This monograph presents a thorough and detailed consideration of the clinical characteristics, growth factors, frequency of occurrence, and surgical methods of treatment of cutaneous tumors Each tumor is described briefly, yet succinctly with the intent that the monograph should function as a useful reference Following the discussion of the individual tumors there is a short but adequate bibliography Artists sketches of techniques of operation are used as a guide to experienced surgeons who may be called on to use the methods of plastic surgery in the management of tumors of the skin. They are not intended to teach surgery to those who are not trained in this field So much emphasis is placed on surgical treatment that the book should have been called "The Surgical Management of Tumors of the Skin." The author believes that, with rare exceptions all types of cutaneous tumors should be removed surgically This tenet disregards the extensive experience of dermatologists and others

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

responsible for the treatment of such lesions Dermatological procedures for the removal of a xanthoma, papilloma, adenoma sebaceum, or of other benign lesions are equal, if not superior, to the techniques advised in this volume On page 163 the author states 'Electrodesiccation has been rather commonly used for destruction of both benign and malignant skin lesions It is mentioned only to be condemned " Further on, the qualification is added that it may be used in the treatment of warts Most dermatologists, radiotherapists, and other practitioners of medicine who have had vastly greater experience than the author with this and other nonsurgical techniques will not agree The only nonsurgical procedure discussed in detail in this volume is the author's technique for tattooing port wine stains These criticisms are minor, though, for the book is a lucid and thorough exposition of both simple and advanced surgical forms of management of skin growths The print is clear, the photographs are excellent This monograph is a valuable contribution, and it is recommended to all physicians concerned with the management of cutaneous tumors

Immunity By Hideo Moriyama Cloth $5 Pp 203 with 16 illustrations Shonan Hygiene Institute Kamakura sole agency Igaku Shoin Company Ltd, 20, Hongo-6, Bunkyo-ku Tokyo Japan 1955

The book is divided into two parts, each with its own bibliography In the first part, entitled Principles of Immunity, the author endeavors to develop his theory concerning the nature of antibodies and the relationship between antibodies, enzymes, and viruses In the second part, entitled Immunological Reactions, the author considers specific immunologic reactions, such as the precipitin reaction and complement fixation, and attempts to explain these in the light of the theories he has advanced in the first part The book is essentially a speculative treatise on the basic aspects of immunology Specific diseases are not considered The author has read widely and thought a great deal about the ultimate basis for immunologic reactions Although his views are interesting and may be correct, it should be fully realized that they are oftentimes speculative and not factually substantiated Essentially, the author believes that all immunologic reactions derive from structural changes in proteins The book endeavors to explain how these changes could be brought about and how certain specific immunologic reactions can be interpreted in the light of such a thesis The book is a sister volume to a work called "The Nature of Viruses and the Origin of Life ' A minor weakness is that occasionally the reader is referred to the other volume for an explanation The book is definitely not for a beginner in immunology, such as a medical student or a beginning graduate student, nor is it a work for the average practicing physician who wants a reference book from which he can obtain explicit data concerning specific immunologic reactions The book should be of interest to the advanced student in the field who wishes to get a slightly different point of view He will find that the author has gathered points from many ancillary fields in an endeavor to support his thesis The text suffers from many minor typographical errors, such as the misspelling of names These are quite numerous, but in no case is the meaning obscured because of them The English is good, although there are occasional nonidiomatic phrases, but these do not cause confusion

Noradrenaline Chemistry, Physiology, Pharmacology and Clinical Aspects By U S von Euler M D, F A C P (Hon), Professor of Physiology Faculty of Medicine, Karolinska Institut, Stockholm, Sweden Publication number 261 American Lecture Series, monograph in Bannerstone Division of American Lectures in Physiology Edited by Robert F Pitts, M D, Ph D Professor of Physiology and Biophysics, Cornell University Medical College New York Cloth $11 50 Pp 382, with 88 illustrations Charles C Thomas, Publisher, 301-327 E Lawrence Ave, Springfield, Ill, Blackwell Scientific Publications, Ltd, 24-25 Broad St, Oxford England, Ryerson Press 299 Queen St, W, Toronto 2B, Canada, 1956

This book summarizes current information concerning the chemistry, physiological effects, pharmacology, and clinical significance of levarterenol (*l*-norepinephrine) bitartrate In 1946 the author first presented evidence that levarterenol was the major pressor amine involved in the chemical transmission of adrenergic nerve impulses Over 700 references are included in the bibliography, and numerous excellent illustrations are presented A minor defect is the wide use of the initials A and NA for epinephrine and *l*-norepinephrine respectively The highly technical nature of the book will probably appeal to the research worker rather than to the clinician, but the latter should find several chapters, particularly those devoted to the association of levarterenol and pheochromocytomas and to the therapeutic uses of levarterenol, of great interest

Diseases of the Endocrine Glands By Louis J Soffer M D F A C P, Clinical Professor of Medicine State University of New York College of Medicine New York City With J Lester Gabrilove M D F A C P Assistant Attending Physician, Mount Sinai Hospital New York Section on Gonads by Arthur R Sohval M D F A C P Associate Attending Physician Mount Sinai Hospital Second edition Cloth $16 50 Pp 1032 with 105 illustrations Lea & Febiger 600 S Washington Sq Philadelphia 6 1956

This edition has omitted the section dealing with carbohydrate metabolism and diabetes mellitus in order to keep the volume within a reasonable length and because this subject needs separate treatment due to its complexity Section 1 deals with the hypophysis, section 2 with the adrenals, section 3 with the gonads (including a special chapter on the virilizing syndrome) section 4 with the thyroid, and section 5 with the thymus and parathyroids There are no chapters 30, 31, 32, 33, or 34 (no break in the page numbers, however), and chapter 35, the appendix, is devoted to a detailed description of laboratory tests of endocrine function It appears to be complete and accurate The book is well written and has a voluminous bibliography One minor criticism would be the amount of space devoted to case histories The book should be a worthwhile addition to the library of any endocrinologist

Pediatric X-Ray Diagnosis A Textbook for Students and Practitioners of Pediatrics, Surgery & Radiology By John Caffey A B M D Professor of Radiology College of Physicians and Surgeons Columbia University New York Third edition Cloth $28 Pp 1059, with 1267 illustrations Year Book Publishers Inc 200 E Illinois St Chicago 11, 1956

This book has long since established itself as a classic in the field of diagnostic pediatric roentgenology The new edition is more complete than ever, containing 197 more pages and 383 new illustrations The subject matter has been expanded to keep abreast of the newer developments, advances, and procedures As in the past, the author stresses the normal and the variants of normal at various ages, which is particularly important in this field of roentgenology A new section on congenital dysplasia and dislocation of the hip has been added Many other new subjects are included, and previous sections have been enlarged and rewritten with additional illustrations This book truly represents one of the best and most informative works dealing with roentgenology ever published It is a real classic not only for radiologists but for any one in any specialty interested in the diagnosis and treatment of diseases in children It is recommended without reservation

Preparing for Motherhood A Manual for Expectant Parents By Samuel R Meaker, M D Cloth $2 Pp 196, with illustrations Year Book Publishers Inc 200 E Illinois St, Chicago 11, 1956

The first chapter of this book emphasizes our modern philosophy that having a baby is a family affair and that education concerning pregnancy and labor concerns the husband as well as the wife An intelligent, well-informed father will make the birth of his child a wonderful experience and may save the physician much grief The story of human reproduction is told in a friendly and informative manner The readers are told about the signs and symptoms of normal pregnancy as well as some of its complications Prenatal care in all its aspects is discussed, and many questions that inevitably arise in the course of pregnancy are answered Experiences in the hospital, pain relief and anesthesia, and the feeding of the newborn infant are presented, throughout the book the author emphasizes the fact that knowledge and understanding are important ingredients in the preparation of the mother for childbirth The book is illustrated by a few simple drawings, which make the text more interesting

QUERIES AND MINOR NOTES

UNHEATED FORMULAS FOR INFANT FEEDING

To the Editor.—*Please discuss briefly unheated formulas for infants. I refer to formulas that have already been sterilized and refrigerated and that are then given ice-cold from the refrigerator.*

J. P. Gibson, M.D., Abilene, Texas.

Answer.—The reasons for heating infant milk mixtures have more weight in their favor than mere convention or propriety. First, it is a proved physiological fact that ingestion of food at less than body temperature delays the emptying time of the stomach, emptying time per se being an accepted digestive index of any food. Secondly, optimum ptyalin (starch enzyme) and rennin and pepsin (casein enzymes) activity, which occurs in the stomach, is known to require body temperatures (98.5 F or 37 C) in vivo and in vitro. The third reason as it pertains to infants is that before gastric digestion can begin the stomach contents must assume body temperature. When this is required of cold food in the stomach, the heat is derived from the infant's gastric circulation by conduction and radiation and hence from general body heat. Thus caloric energy otherwise used by the infant for anabolic processes is sacrificed. In premature or clinically immature infants this process would be a useless dissipation of energy by an organism with already well known problems of thermal control and weight-gain. In some unpublished observations made by Brennemann relative to his well-known curd studies in 1920 it was observed that milk mixtures given at room temperatures (72 F or 22 C) remained in the stomach as long as five hours after ingestion. The identical mixtures given at body temperatures left the stomach in three to three and a half hours. No observations were made of milk at refrigerator temperatures (milk in the average home refrigerator is about 40 F or 5 C), but it may well be postulated that such milk would delay gastric emptying time as long as or perhaps longer than five hours. However, much more is made of warming infant formula mixtures than is warranted by factual needs. Many baby attendants have a fetish of heating baby milk foods using the time-honored "milk-on-the-wrist test," which to even feel the warmth of the milk by this method would achieve a milk-in-bottle temperature of at least 120 F or 49 C. The efficacy of the colloquialism that hot milk "will warm up the baby" is open to debate, since infants have not lived long enough to be impressed by the psychological effect of the warming possibilities of hot food, erroneously so inferred by adults. Nature's guide of human milk excreted at 98.5 F or 37 C to the nursing breast fed infant, would seem to make this a likely temperature for optimum gastric digestion and stomach emptying time.

AMPHETAMINE

To the Editor.—Does amphetamine influence the mutation rates of micro organisms? I saw a remark in Annual Review of Physiology *that chemicals that produce mutations are also carcinogens. Many doctors prescribe amphetamine as a weight reducer as well as for narcolepsy. If this drug is a mutagen and if this should imply action as a carcinogen, the organ on which this effect should be strongest would naturally be the stomach. Since this is also the commonest site of internal cancer in man, there might be some connection. Of course, amphetamine is a new drug and could not account for the prevalence of stomach cancer in the past.*

Alfred B. Mason, M.D., Camp Lejeune, N. C.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—The correlation between carcinogenic and mutagenic activity is quite close. However, many carcinogens have failed to display mutagenic activity, while many mutagens have not been proved to be carcinogens. This, however, does not necessarily negate the hypothesis that cancer is a somatic mutation that can be brought about by substances that induce genetic mutations. Usually mutagenic activity is demonstrated in bacteria or insects, while carcinogenic activity is studied in mammals. Many species differences must, therefore, be taken into account, such as differences of penetration of the drug and the nature and speed of the detoxification. Thus carcinogenic activity could be due to a metabolic breakdown product, or the toxicity of a known mutagen to higher animals might preclude satisfactory screening for carcinogenic activity. Reference could not be found for a mutagenic activity for amphetamine. However, the site of carcinogenic activity for a given drug cannot necessarily be predicted, since many carcinogens are remote-acting, inducing tumors in certain specific organs or tissues regardless of the route of administration.

Answer.—Concerning the inquiry relating to amphetamine-induced mutations and possible carcinogenic effects, the available literature has been reviewed and no reference to the influence of amphetamine on mutation rates in micro-organisms has been found. Inasmuch as the drug has been in widespread use for about a decade, it appears unlikely that it would have such an effect in man. It is believed that not all chemicals that induce mutations are also carcinogenic. Penicillin, for example, is known to cause mutagenic effects in certain unicellular organisms, but it never has been implicated as a human carcinogen. While the possibility exists that amphetamine can induce mutations in micro-organisms (and perhaps in man), the likelihood of carcinogenic effects by its clinical application is extremely remote.

SCHISTOSOMIASIS

To the Editor.—*Can estimates or prognoses be given regarding infestation with Schistosoma mansoni in young Puerto Rican males who are asymptomatic? These patients have rectal lesions and show slight elevation on the sulfobromophthalein dye test. How many of these patients would develop pipestem cirrhosis? Is there any way to gauge the amount of infestation, i. e., heavy or light? Most of these Puerto Ricans have been away from their island for several years. Without further treatment does the adult fluke die out over a period of years? Does treatment with antimony potassium tartrate and Fuadin alter the pathological process in the intestine and liver at this stage, i. e., 5 to 10 years after the onset of infestation, or is the purpose of therapy a prophylactic means to avoid cirrhosis?*

Leonard Breslaw, M.D., Lewisburg, Pa.

Answer.—Examination of Puerto Rican inhabitants in New York City, particularly children, indicates about 10 to 15% have Schistosoma mansoni. The majority of these individuals are asymptomatic, and it is not possible to estimate the percentage of infected individuals who will develop hepatic cirrhosis. It is difficult to determine the density or severity of infection because of the influence of the duration of infection on the number of eggs that escape into the intestinal tract. Thus in recent infections, where a large proportion of the eggs laid escape into the intestinal tract, one could determine relative densities of infection by quantitative egg-counting methods of stool examination. In relatively old infections of the same degree of severity few eggs might escape, and this would nullify the validity of the quantita-

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

tive stool egg count in relation to the severity of the infection Live worms and viable eggs have been found in Puerto Ricans in New York about 20 years after their last exposure on their home island, indicating that the adult worms may survive and produce viable eggs for relatively long periods of time The objective of specific treatment is to destroy the adult worms and thus prevent the progressive pathological changes in the gastrointestinal tract and liver and/or other organs that are the result of the presence of both the worms and the eggs After specific treatment, reparative processes may completely obscure any irreparable pathological changes and organic function may be restored to normal levels Progressive changes are stopped, and thus the effects of treatment are beneficial not only in relation to the cessation of immediate damage but also in the prevention of progressive disease

PRECAUTIONS ON A TRIP TO AFRICA

To the Editor —*Some suggestions were sent me about immunizations for our trip through Kenya, Tanganyika, Mozambique, and South Africa and two drugs were mentioned as preventing malaria, chloroquine and quinacrine Atabrine has also been suggested to me Which one would probably be best Thirty years ago we went to the Far East and were told not to eat salads, berries, and uncooked vegetables Would the same advice now be true in Africa?*

Robert W Shearman, M D , Brooklyn, N Y

Answer —Chloroquine (Aralen) diphosphate is preferred over quinacrine for the suppression of malaria Quinacrine is a synonym of Atabrine Single weekly doses of 500 mg of chloroquine diphosphate will produce complete suppression of all forms of malaria and will provide a suppressive cure of falciparum malaria However, vivax and possibly malariae (quartan) infections will produce clinical attacks several weeks after termination of suppressive therapy For this reason, it is advisable to continue such therapy until return to an area in which adequate diagnostic and hospital facilities are available It is well to avoid the consumption of raw salads, berries, and vegetables in areas in which sanitation is at a low level, including most parts of Africa Dangers of acquiring amebic infection from raw vegetables may be obviated to a considerable extent by soaking the vegetables in vinegar containing 5% acetic acid for at least 30 minutes at a temperature of 30 C (86 F) (Jones, M F *Am J Trop Med* 1 576-584 [July] 1952) It is advisable also to boil all drinking water or to employ one of the chlorine or iodine preparations for sterilization

VAGINITIS IN DIABETIC PATIENT

To the Editor —*Please send information on nonspecific vaginitis and vulvitis in a 24-year-old woman who has diabetes mellitus She shows a definite glycosuria and a comparatively low blood sugar level, the highest being 180 mg per 100 cc Forty-six units of insulin keeps the blood sugar level down to about 80 mg per 100 cc and she shows about 1+ sugar in the urine Any increase of insulin gives her an insulin reaction occasionally*

M D , Illinois

Answer —It is assumed that the blood sugar level of 80 mg per 100 cc is a fasting blood sugar level It is possible, particularly if protamine zinc insulin is being used, that the blood sugar level before breakfast may be quite normal but may rise after meals to levels that permit glycosuria It is suggested therefore that the blood sugar level be determined two or three hours after breakfast and two or three hours after lunch If it is elevated at these times, and if protamine zinc insulin is being used, a change to isophane insulin might provide better control of the postprandial blood sugar level If isophane insulin is already being used, the addition of a small amount of unmodified insulin, taken at the same time as the isophane insulin, would aid in keeping the postprandial blood sugar level more nearly normal It is furthermore important to determine whether the urine is sugar-free after the evening meal If not, a small dose of unmodified insulin before supper might be of help The great majority of cases of vaginitis in diabetic women are caused by a mycotic infection In such cases, the intravaginal instillation of Aci-Jel once or twice daily for several weeks is usually effective

TUBERCULOUS PERICARDITIS

To the Editor —*What is the treatment for hemorrhagic pericarditis that is tuberculous in origin? The patient is responding well to therapy with streptomycin, isoniazid, and aminosalicylic acid However, there is some dispute as to dosage of streptomycin and also whether the pericardium should be excised to prevent late complication of constrictive pericarditis The fluid is absorbing, and symptoms and signs of tamponade are diminishing*

Morton J Silk, M D , Morris Plains, N J

Answer —It is probable that prolonged treatment with combined dihydrostreptomycin and streptomycin, 0 5 gm of each a day, plus 200 mg of isoniazid, plus 12 gm of aminosalicylic acid a day, will take care of tuberculous pericarditis and prevent constricting adhesions Excision of the pericardium should be undertaken only after the acute pericarditis has completely subsided, as evidenced by a normal sedimentation rate, and then only if there are definite signs of constrictive pericarditis Some new work has been done in France with the use of prednisone (Meticorten) in order to prevent fibrosis The reports are favorable, but corticotropin, cortisone, and prednisone so frequently cause activation and spread of tuberculosis that this remedy seems very questionable Intrapericardial injection of antituberculosis drugs does not seem indicated If fluid collects in sufficient amounts to cause symptoms of pericardial tamponade, it should, of course, be aspirated

PENICILLIN FOR ORAL USE

To the Editor —*Please outline a dosage regimen on a weight basis for infants and children with reference to the use of phenoxymethyl penicillin orally*

Richard M Margolis, M D , Charleston Heights, S C

Answer —Phenoxymethyl penicillin (V-Cillin, Pen-Vee Oral) is a new kind of penicillin for use orally It exhibits a high degree of stability in the presence of gastric acidity Because of this unique characteristic, antibiotic loss in the stomach, normally anticipated with penicillin G, does not occur, therefore, more penicillin is available for absorption Blood levels ranging from 50 to 100% higher than those obtainable with comparable doses orally of penicillin G have been demonstrated clinically Penicillin, like other antibiotics, should never be prescribed promiscuously Some individuals are allergic to the first dose, while others become sensitized by repeated use, deaths have been reported occasionally, especially after penicillin given parenterally Penicillin orally is for the treatment of infections known to respond to penicillin therapy, particularly those caused by Streptococcus, pneumococcus, Micrococcus, or gonococcus organisms The dose, regardless of age or body weight is usually 125 to 250 mg three times daily, or every eight hours, in 125-mg and 250-mg capsules It can also be given in pediatric suspension (V-Cillin pediatric or Pen-Vee suspension),—1 teaspoonful (125 mg) every six to eight hours

POSSIBLE HAZARDS IN RETREADING TIRES

To the Editor —*Is the chemical ordinarily used in recapping tires a causative factor in leukemia? Is work of this sort considered an industrial hazard?*

George R Wilkinson, M D , Greenville, S C

Answer —An automobile tire to be retreaded is first ground mechanically to evenness and then coated liberally with a rubber cement Thereafter, strips of rubber are affixed to the glued surface and vulcanization is brought about The rubber cement could be the present offender Some such cements contain benzene, often called benzol Evaporation from the tire surface affords abundant exposure in the absence of protective measures Leukemia is not a characteristic response to benzene Leukopenia is the common manifestation There are now on record 14 instances of leukemia attributed to benzene action Analysis of the cement will establish if benzene is a constituent Air analyses of the workroom atmosphere during exposure may reveal benzene A simpler procedure is to examine the urine of workers lately exposed for the sulfate index Recent exposure to benzene but not benzene poisoning thus may be established Regardless of the presence of benzene in the cement the process of tire capping or retreading may introduce exposures to dermatitis from diverse rubber accelerators and antioxidants and possibly from hydrocarbons other than benzene in the cement.

CALORIES IN CORNBREAD

To the Editor —*An obese man now reducing his weight likes "cornbread prepared by mixing cornmeal and water and frying it in bacon grease How many grams of carbohydrate protein and fat and how many calories are in each cupful of cornmeal used in making this cornbread? How many grams of carbohydrate protein and fat and how many calories are in the 2 teaspoonfuls of bacon grease or vegetable shortening used to grease the pan in which the bread is fried?*

M D Georgia

Answer —The following table is from Food Values of Portions Commonly Used" (Bowes and Church, Philadelphia College Offset Press Inc, 1954)

Food Values in Cornmeal and Fat

	Amount	Calories	Protein Gm	Carbohydrate Gm	Fat Gm
Cornmeal enriched dry	1 cup	544	11.8	117.6	1.8
Bacon fat	2 teaspoons	84		0	9.3
Total		628	11.8	117.6	11.1

TREATMENT OF PYODERMA

To the Editor —*Is it advisable to use Terramycin ointment or powder for skin infections before culture and sensitivity studies have first been made? Is the incidence of skin sensitivity due to the topical use of this antibiotic of sufficient magnitude to preclude its use routinely? How do Aureomycin Terramycin, Achromycin, Furacin bacitracin and penicillin range in order of their sensitizing potency on skin?*

Milton Jabush M D Lakewood N J

Answer.—Theoretically and ideally the proper procedure to follow in the treatment of pyoderma would be to conduct culture and sensitivity tests but such studies are time consuming so that the usual procedure which has proved to be practical, is to employ an antibiotic agent (as an ointment and/or systemically) first. If the infection is not controlled quickly then sensitivity tests are made Penicillin and Furacin are generally thought to be the most likely to sensitize the skin bacitracin the least likely, and the others in between The better course is to employ as a topical agent one, such as bacitracin that is not likely to be used systemically

AIDS TO ESTABLISH AUTOMATIC MICTURITION

To the Editor —*Is there any apparatus available such as a chair or its equivalent that will aid in the development of an automatic bladder in a paraplegic female?* *M D Texas*

Answer —There are no mechanical devices yet developed to aid in establishing automatic micturition Some success in voiding at predictable intervals may be obtained by a quantitative regulation of fluid intake to correspond with periodic attempts at voiding This regimen, however is usually only applicable to lower motor neuron lesions, where micturition may be initiated by straining and sustained by Credé's method For techniques, consult A Bladder and Bowel Training Program for Patients with Spinal Cord Disease" by Buchwald McCormack, and Raby (Rehabilitation Monograph 3 New York, Institute of Physical Medicine and Rehabilitation New York University—Bellevue Medical Center) Upper neuron lesions resulting in the so-called spastic reflex type of detrusor urinae frequently defy any efforts at training and usually require a permanent indwelling catheter in the female

BOILING TAP WATER

To the Editor —*What changes are made in boiling ordinary city tap water where chlorine and fluorine are used in it? Does the boiling entirely get rid of the chlorine and fluorine? Is softened water healthy to drink?*

E L Cacenee, M D Champaign Ill

Answer —Fluorine as such is not present in drinking water The fluoride ion is naturally present in many waters and is added to some to aid in reducing dental caries Boiling does not remove the fluoride ion Boiling does remove chlorine when present as free chlorine (HOCl or OCl^-) but has little effect on combined chlorine such as chloramines There is nothing harmful per se about softened water or naturally soft water Millions of people in the United States drink either naturally soft or softened water The healthfulness of the water depends on other constituents than those responsible for hardness

PORTAL HYPERTENSION

To the Editor —*What are the accepted surgical methods of treating portal hypertension and ascites resulting from hepatic cirrhosis?* *M D New York*

Answer —At present, the two most commonly employed surgical procedures in the alleviation of the sequelae of portal hypertension are the direct portacaval anastomosis and the splenorenal shunt Of the two procedures, the direct end to-side portacaval shunt is preferred if the situation permits Portacaval shunting is contraindicated in patients with unstabilized ascites Even when ascites is stabilized shunting should be delayed further when the sulfobromophthalein retention is 35% or higher (after one-half hour), serum albumin 3.5 gm per 100 cc or lower serum bilirubin 1.5 mg per 100 cc or higher prothrombin time levels, 5 seconds or more above central levels and cephalin flocculation, 3 to 4 +

CENTRAL VISUAL FIELDS

To the Editor —*What information is obtained in doing central visual fields at 1 and 2 m with the same size test objects and also with a larger test object at 2 m?* *M D New York*

Answer —At 2 m a given test object will subtend a smaller visual angle than it will at 1 m Therefore, it becomes a weaker stimulus to the patient's eye By this means it is possible to outline a more subtle relative field defect. At a distance of 2 m utilizing larger test objects to offset the decrease in stimulus due to the added distance a larger projection of the field pattern is obtained on the screen. This permits a more accurate outline of the visual field which may be especially valuable in mapping small defects Also it is possible to test the patient's reliability with this variation, since the change in the field size is predictable An example would be "tunnel vision in hysteria which typically remains unchanged when the test distance is modified

MYOCARDIAL INFARCTION

To the Editor —*In a man 34 years of age who had died in his sleep a small acute myocardial infarction was demonstrated His health had been good except for a cold for three days for which it is believed he was taking Neohetramine tablets Would this drug have any bearing on his death?*

Charles F Gaylord M D, Staunton Va

Answer —There is no reason for an antihistamine to produce a myocardial infarction by itself However large doses of potent antihistamines have been known to produce cardiac stimulation resulting principally in tachycardia It is conceivable although rather unlikely that such cardiac stimulation in a damaged heart might result in a coronary occlusion. What makes it even more unlikely in this case is that Neohetramine is among the least potent and least toxic of the antihistamines

PROTECTIVE COVER FOR WRIST WATCHES

To THE EDITOR —*Please name a protective cover for wrist watches to make them safe for wear by persons with skin very sensitive to the metal of the case*

M D , New York

ANSWER —It is possible to obtain leather, cloth, or other fabric cases for wrist watches A simple method of solving this problem is to cover the back of the watch with adhesive tape Another simple method is to treat it with collodion or colorless nail polish

DRUGS THAT COLOR THE URINE

To THE EDITOR —*What drugs are capable of producing abnormal coloring in the urine?* *M D , New Jersey*

ANSWER —Drugs that produce abnormal coloring in the urine include trinitrophenol, reddish brown, phenols, brownish-black, pyridium, reddish-orange, aminopyrine, occasionally red, quinacrine, intense yellow, phenothiazine, red, methylene blue, green, and senna, rhubarb, cascara, aloe, santonin, and phenolphthalein, which color acid urine yellowish-brown and alkaline urine reddish or violet

ARMY PERSONNEL "GASSED" DURING WORLD WAR I

To THE EDITOR —*The following additional published and unpublished data may be of interest concerning a query entitled Army Personnel 'Gassed During World War I" in* THE JOURNAL, *May 5, page 118 Case and Lea reporting the results of their study on the problem concerning British veterans found a statistically significant excessive liability to lung cancer for gassed British veterans (Mustard Gas Poisoning, Chronic Bronchitis, and Lung Cancer,* Brit J Prev & Social Med *9 62-72, 1955) It is of interest also that Yamada, Hirose, and Miyanishi (An Autopsy Case of Bronchial Carcinoma Found in a Patient Who Succumbed to Occupational Mustard Gas Poisoning,* Gann *44 216-218, 1953) observed the occurrence of lung and larynx cancers among Japanese workers employed in a war gas factory on Okuno Island While the cited publication deals only with two cases of lung cancer, Yamada in subsequent observations found a third case of lung cancer and three cases of larynx cancer among members of this occupational group The three cases of lung cancer were discovered at autopsy, while the three cases of larynx cancer were based on biopsy findings Before the cancerous character of the respiratory diseases noted among these workers was correctly recognized, the diseases were known as "Okuno curse" and were clinically diagnosed as pulmonary tuberculosis, a diagnostic mistake repeatedly made and reported in the history of occupational cancers of the lung*

W C Hueper, M D
National Institutes of Health
Bethesda 14, Md

KRAUROSIS OF VULVA

To THE EDITOR —*In* THE JOURNAL, *May 5, page 117, is a question concerning kraurosis of the vulva Apparently this question was referred to a gynecologist for answering I believe that an entirely different answer would have been received had this question been referred to a dermatologist Certainly kraurosis of the vulva is a dermatological problem in many instances I would refer you to an article by Dr Eugene P Schoch Jr and myself in* THE JOURNAL, *March 26, 1955, page 1102, in which we tried to point out that entirely too many vulvectomies are being done for noncancerous lesions Certainly kraurosis of the vulva is a dermatological problem in process It is an atrophic process It is true that leukoplakia is very apt to appear on a kraurotic vulva Even when this happens, it is a simple matter to use desiccation or some other means of removal of the leukoplakic spots I believe that most dermatologists will agree that kraurosis vulvae will respond, in many cases, to dermatological therapy Admittedly in some cases of kraurosis vulvae, particularly in older women, vulvectomy is justified*

C H McCuistion, M D
609 Capital National Bank Bldg
Austin, Texas

To THE EDITOR —*In Queries and Minor Notes, page 117, in* THE JOURNAL, *May 5, the answer on kraurosis of vulva deserves comment Although the answer is extensive and covers various phases of the possible problem, one cannot tell whether the doctor asking the question or the doctor answering the problem are dealing with kraurosis vulvae or leukoplakia Certainly the diagnosis, prognosis, and treatment for the two conditions are entirely different Kraurosis vulvae is usually considered to be lichen sclerosus et atrophicus on the vulva, which is an atrophy of the dermis and epidermis If the doctor is talking about a patient with kraurosis vulvae, the treatment suggested is far more radical than necessary, as kraurosis vulvae is a benign condition and not precancerous except when rarely complicated by leukoplakia Leukoplakia is a hyperkeratosis of the epidermis and is definitely precancerous Apparently the answer given applied to leukoplakia I doubt very much if local medication is of value in either disease It is time for practitioners, gynecologists, and others to be better informed concerning these two conditions A well-performed biopsy would be diagnostic*

Francis A Ellis, M D
8 E Madison St
Baltimore 2

SALIVARY FISTULA

To THE EDITOR —*I noticed the query regarding treatment of salivary fistula in* THE JOURNAL, *May 19, 1956, page 298 I successfully treated several cases with roentgen therapy when at the Cleveland Clinic My first report was published in the* Annals of Surgery, *May, 1935 Reference is also made to this method of treatment on page 161 in the book Clinical Therapeutic Radiology" (New York, Thos Nelson & Sons), which I edited in 1950 I believe that, rather than attempting radical surgery, as suggested in* THE JOURNAL, *irradiation should be given a trial The idea is to suppress the function of the gland The dosage should be between 1,500 and 2,000 r given by protracted technique*

U V Portmann, M D
721 N Fourth Ave
Tucson, Ariz

FLIGHT AFTER PNEUMONECTOMY

To THE EDITOR —*The answer to a query in* THE JOURNAL, *March 31, 1956, page 1184, on how high a person may fly in commercial airplanes after a complete right pneumonectomy does not state that the mediastinum must become stabilized before any air travel is undertaken Also, why pressurization of the cabin at 5,000 ft is specified is not clear I have data to prove that an adult can easily tolerate an altitude of 10,000 ft with only one remaining lung, without difficulty The usual commercial aircraft cabin can be pressurized to 8,000 ft at an altitude of about 22,000 ft Newer types of aircraft such as the Viscount can be pressurized to 6,000 ft at 22,000 ft In the last sentence of the answer the word should be "lower" not 'higher" I might also add that the airlines carry patients with many types of medical conditions aboard regularly scheduled commercial aircraft*

Ludwig G Lederer, M D , Ph D
Medical Director, Capital Airlines
Washington National Airport
Washington 1, D C

« Washington News »

PHS Offering 250 Traineeships • •
Salk Vaccine Now Being Exported • •
New FCDA National Survival Plan Announced • •
Internists Lead Specialists in Army Survey • •
Vocational Rehabilitation Grants to States • •

TRAINEESHIPS IN PUBLIC HEALTH

The Public Health Service is offering a total of approximately 250 traineeships for graduate or specialized public health training for professional public health personnel during the current fiscal year. Another 500 traineeships are being made available for graduate nurses preparing for supervision, teaching, or administration in public health. Both programs were authorized by the 84th Congress in the omnibus health bill recently signed into Public Law 911 by the President.

On public health traineeships, the PHS said the primary objective is "to bring new people into the field" and that the program is designed to "supplement rather than replace the training activities currently sponsored by the state and local governments." Preference will be given qualified individuals who have had not more than two years experience in public health and less than a year of graduate or specialized public health training. The PHS also expressed a preference for men and women under 35 years of age and only under exceptional circumstances for those over 45. The traineeships, for which Congress appropriated 1 million dollars, will be awarded directly to individuals by the PHS or through grants to training institutions. Applicants for individual traineeships should apply to PHS regional offices or to the Chief, Division of General Health Services, Bureau of State Services, Public Health Service, Washington 25, D. C. After this year, applications should be in by April 1 of the academic year preceding the one for which the traineeship is wanted.

The graduate nurse traineeships, amounting to 2 million dollars this year, are being allocated directly to 54 nursing schools and schools of public health. An applicant, accordingly, will apply to the school of her choice. The program is being administered by the Division of Nursing Resources of the Public Health Service, in Washington.

OTHER HEALTH MEASURES

A health research facilities branch has been established in the National Institutes of Health, and work is going forward on regulations to carry out the 90-million-dollar program of construction grants for research laboratories. A 12-man National Advisory Council on Health Research Facilities will be named by HEW Secretary Folsom, and its first job will be the approval of the regulations. The PHS surgeon general will award a grant only after it has been approved by the council.

With the enactment of Public Law 941, for the establishment of the National Library of Medicine, a panel of names for the board of regents was being drawn up for consideration by the President. He is to appoint 10 regents, and 7 others are government officials. The board's first major assignment is expected to be the selection of a site for the library.

SALK VACCINE

A limited quota of 1 million cubic centimeters of Salk poliomyelitis vaccine is being made available for export for the first time. This represents approximately 2.5% of U. S. production for May, June, and July, according to Secretary of Commerce Sinclair Weeks. In his announcement of the action, Mr. Weeks said, "American children are given full opportunity to be vaccinated. Now that supply is approaching domestic requirements, an allocation of vaccine is being made for commercial export to friendly foreign countries urgently in need of the vaccine. During the period when the supply was short, only small amounts of the vaccine were licensed for export for special purposes, primarily in the research field."

It is anticipated that the export quota will be greatly oversubscribed in view of the keen interest expressed in many countries for vaccine from the United States. Therefore, in order to help insure an equitable distribution of the quota, criteria have been established by the department giving priority to countries having a known high incidence of poliomyelitis or those suffering from severe current epidemics. Additionally, consideration will be given to the adequacy of programs for effective utilization of the vaccine. In general, licenses will be issued only for applications endorsed by the ministry of public health of the countries concerned. The Bureau of Foreign Commerce will announce in a forthcoming bulletin the detailed requirements in connection with the filing of applications for export of vaccine under this quota.

SURVIVAL PLAN

The Federal Civil Defense Administration has announced a new "national plan for survival" in the event of an enemy attack. The plan is outlined in a publication that replaces a 1950 study of the National Security Resources Board that has become outdated since the development of the hydrogen bomb. The new plan is divided into two broad phases of civil defense activity: preparations that must be made during the preattack period and actions that must be carried out during the emergency period immediately before and after an enemy attack.

(Continued on next page)

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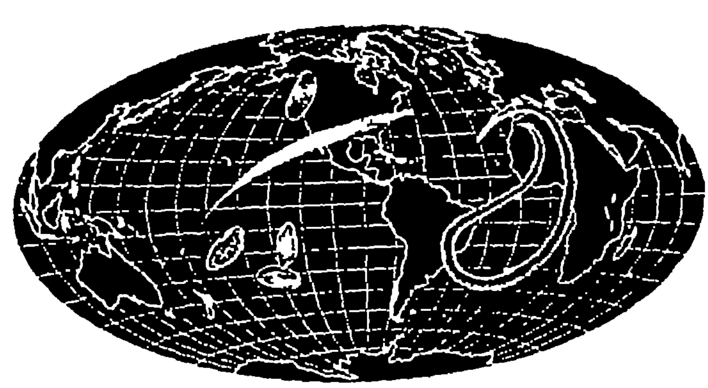

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Washington News—Continued

The FCDA points out that the document is not an operational plan but "provides a broad base upon which operational plans—national, regional, state and local—can be developed" Directed primarily toward state and local civil defense directors and their staffs, the plan also is designed to serve as a guide for federal agencies, national organizations, and others cooperating in the civil defense program It is not intended as a presentation of future plans, but reflects current thinking only, the agency stresses Revision would be essential if a potential aggressor developed the ability to attack with intercontinental ballistic missiles, produced atomic-powered planes, or developed new techniques for chemical or biological warfare

The national plan also outlines the FCDA's responsibility for close cooperation with state and local agencies through its seven regional offices and the FCDA relationship with other federal agencies that have been delegated definite responsibilities for actio in civil defense Copies of the plan are available fo 55 cents through the Superintendent of Document Government Printing Office, Washington 25, D

SPECIALISTS IN ARMY

The Army's semiannual survey of its specialis shows internal medicine is the most popular, wi surgery a close second Of the 681 Army medical o ficers on active duty (regular and reserve) who ho specialty certification, 17% are in internal medic and 15% in surgery Among the remaining 68%, a to of 23 specialties and subspecialties is represented T Army notes that the total of medical specialists now uniform is slightly lower than during the Korean w period, when large numbers of reserve officers we recalled to active duty At one point the total was over 800 However, the Army says that the present high total of 681 medical officer specialists "reflects the constant growth of American board diplomate census' since the Army started its graduate professional training program in 1947 Of the 102 Army medical officers listed as diplomates in internal medicine, 11 also have certification in a subspecialty in their field

REHABILITATION GRANTS

To help support state vocational rehabilitation programs, the U S Office of Vocational Rehabilitation has allocated to states 35 million dollars appropriated by Congress The total is $3,500,000 more than the program had last year Of the total, $33,500,000 is designated for basic support of state programs to help disabled persons overcome their handicaps and obtain employment and $1,500,000 is earmarked for use in projects designed to improve and extend rehabilitation services All federal funds must be matched by the states, but states are permitted to make grants to other public or private nonprofit organizations to set up, enlarge, or improve rehabilitation facilities and sheltered workshops In addition to the two matching fund grants, 2 million dollars is available for special project grants in research and demonstrations and $2,950,000 for teaching grants and traineeships for professional rehabilitation workers

PERSONNEL

Dr Peter J Farago has been appointed as deputy medical director of the Food and Drug Administration Dr Farago comes to the FDA from the Abbott Laboratories, North Chicago, where he has been a member of the medical department doing investigative work on new drugs for the past three years Brig Gen Otis O Benson Jr, who has been with the Air Force surgeon general s office for three years, has been named commandant of the School of Aviation Medicine at Randolph Field, Texas The Federal Civil Defense Administration has announced the appointment of Miss Catherine M Sullivan, a commissioned nurse officer of the U S Public Health Service, as assistant chief nurse in the FCDA health office at the agency's national headquarters, Battle Creek, Mich Miss Sullivan will work under the direction of the chief nurse of the health office

MISCELLANY

The National Institutes of Health, Bethesda, Md, is administering a senior research fellowship program designed to attract and hold able investigators in the preclinical sciences During the first year, the program will provide for a total of 40 to 50 awards to the nation s medical schools, dental schools, and schools of public health Along these same lines, the PHS National Institute of Neurological Diseases and Blindness has announced that funds are being made available to medical schools to strengthen existing clinical programs in advanced training in the neurological diseases The purpose is to stimulate the interest of more young physicians and scientists in careers as teachers and investigators Training grants also are available to basic science departments to expand postdoctoral training programs in the neurological sciences The expanding horizons of military medicine will be the theme of the annual meeting of the Association of Military Surgeons of the United States, to be held in Washington, D C, on Nov 12, 13, and 14 The meeting will stress the growing responsibilities of medicine and its associated discipline in the federal medical services Nineteen research and demonstration projects for which the Office of Vocational Rehabilitation has allocated grants totaling $540,923 have been announced They include 'half-way house to effect vocational rehabilitation of discharged mental hospital patients, a project to rehabilitate blind farmers and their farms simultaneously, and research into the use of physically handicapped persons in automation In announcing the grants, Miss Mary E Switzer, director of OVR, said that all these programs hold promise of making substantial contributions to the solution of vocational rehabilitation problems All the projects have been approved by the 12-member National Advisory Council on Vocational Rehabilitation

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NATIONAL ORGANIZATIONS OF MEDICAL INTEREST

SOCIETY	PRESIDENT	SECRETARY	MEETING
American			
Public Health Association	Ira V Hiscock New Haven Conn	H M Atwater 1790 Broadway New York 19	Atlantic City N J Nov 12-16
Radium Society	N A McCormick Windsor Ont Canada	Theodore R Miller 139 East 36th St New York 16	Quebec City Can May 30-June 1
Rheumatism Assn	William D Robinson Ann Arbor Mich	Edward F Hartung 580 Park Ave New York 21	Toronto Can June 23-25
Roentgen Ray Society	Paul C Hodges Chicago	Barton R Young Germantown Hosp Philadelphia 44	Los Angeles Sept. 25-28
School Health Assn	T P Barrett Fort Worth Tex	A O DeWeese, 515 E Main St Kent Ohio	Atlantic City N J Nov 12-16
Society for Clinical Investigation	A McGehee Harvey Baltimore 5	J D Meyers U of Pittsburgh Sch of Med Pittsburgh 13	
Society for Experimental Pathology	Frank W Hartman Detroit	Cyrus C Erickson 858 Madison Ave Memphis 3 Tenn	Chicago April 15-19
Society for Pharm & Ex Ther	Harry Beckman Milwaukee 3	Harold Hodge Univ of Rochester Rochester 20 N Y	Louisville Ky Oct 22-25
Society for the Study of Sterility	W T Pommerenke Rochester N Y	H H Thomas 920 S 19th St Birmingham Ala	New York May 31-June 2
Society of Anesthesiologists	Scott M Smith Salt Lake City 11	J E Remlinger Jr 188 W Randolph St Chicago 1	Kansas City Mo. Oct 8-12
Society of Biological Chemists	H E Carter Urbana Ill	Philip Handler Duke University Durham N C	Chicago April 15
Society of Clinical Pathologists	Emma S Moss New Orleans 12	C G Culbertson 1040 W Michigan St Indianapolis 6	Chicago Oct 7-12
Society of Maxillofacial Surgeons	Douglas B Parker New Orleans	John A Drummond 1414 Drummond St Montreal 25 Can	Minneapolis May 12-15
Society of Tropical Medicine & Hygiene	Asa C Chandler Houston 1 Texas	John F Larsh Jr Univ of N Car Chapel Hill N C	New Orleans Oct. 31-Nov 3
Surgical Assn	Loyal Davis Chicago	R Kennedy Gilchrist 30 E Madison St Chicago 3	Chicago May 8-10
Therapeutic Society	Gerald H Pratt New York	O B Hunter Jr 915 19th St N W Washington D C	New York May 30-June 2
Trudeau Society	Paul C Samson Lafayette Calif	William C Childress 1790 Broadway New York 19	Kansas City Mo May 6-9
Urological Assn	George C Prather Brookline 46 Mass	Samuel L Raines 188 S Bellevue Blvd Memphis Tenn	Pittsburgh May 6-9
Venereal Disease Assn	Ivan F Martin Modesto Calif	S R Taggart 300 Indiana Ave N W Wash 1 D C	
Veterinary Medical Assn	Floyd Cross Fort Collins Colo	J G Hardenbergh 600 S Michigan Ave Chicago 5	San Antonio Tex Oct 15-18
Assn for Research in Nervous & Ment Dis	Harry Solomon Boston	Rollo J Masselink 700 W 168th St New York 32	New York Dec 7-8
Assn for Research in Opthalmology	William B Clark New Orleans	Lorand V Johnson 10515 Carnegie Ave Cleveland 6	
Assn of American Medical Colleges	Robert A Moore Pittsburgh	Dean F Smiley 185 N Wabash Ave Chicago	Colorado Springs Colo Nov 12-14
Assn of American Physicians	C Phillip Miller Chicago 37	P B Beeson Yale U Sch of Med New Haven 11 Conn	Atlantic City N J May 7-9
Assn of Life Ins Med Dir of America	Ralph R Simmons Des Moines Iowa	Henry B Kirkland P O Box 594 Newark 1 N J	New Orleans Oct 23-25
Assn of Medical Illustrators	Mr Leon Schlossberg Baltimore 5	Miss Rose M Reynolds 42nd and Dewey Ave Omaha 5	Iowa City Oct 5-7
Assn of Military Surgeons of U S	W Dana U S N Washington 25 D C	R E Bitner 1726 I St N W Washington 6 D C	Washington D C Nov 12-14
Assn of State & Territorial Health Officers	Daniel Bergsma Trenton N J	Franklin D Yoder State Board of Health Cheyenne Wyo	Washington D C 1956
Biological Photographic Assn	Mr H Lou Gibson Rochester 4 N Y	Miss J Waters Box 1068 Grand Central P O N Y 17	Rochester N Y Aug 28-31
Central Assn of Ob & Gyn	Harold L Gainey Kansas City Mo	Edwin J DeCosta 104 S Michigan Ave Chicago 3	New Orleans Oct. 4-6
Central Neuropsychiatric Assn	Francis J Gerty Chicago	Hamilton Ford 112 North Blvd Galveston Texas	Omaha Neb Oct 1956
Central Society for Clinical Research	Randall Sprague Rochester Minn	Robert H Ebert 950 E 59th St. Chicago 37	Chicago Nov 9-10
Central Surgical Assn	Robert M Zollinger Columbus 10 Ohio	Charles D Branch 102 North St Peoria Ill	Chicago Feb 21-23
Clinical Orthopaedic Society	I S McReynolds Houston Texas	Marcus J Stewart 869 Madison Ave Memphis Tenn	Cleveland Oct. 5-6
College of American Pathologists	W A D Anderson Miami Fla	A H Dearing Prudential Plaza Suite 2115 Chicago 1	Chicago Oct. 8-13
Gerontological Society	William B Kountz St Louis 9	Nathan W Shock Baltimore City Hospitals Baltimore 24	Chicago Nov 8-10
Industrial Medical Association	F S Jones Hammond Ind	H Glen Gardiner Inland Steel Co East Chicago Ind	St. Louis April 22-26
Interstate Postgrad Med Assn of N A	Alton Ochsner New Orleans	Erwin R Schmidt 1300 University Ave Madison 6 Wis	Cleveland Oct 22-26
Medical Library Assn	Miss Bertha B Hallam Portland 1 Ore	Mrs H T Perkins 333 Cedar St New Haven 11 Conn	New York May 6-10
National Medical Assn	A C Terrence Opelousas La	John T Givens, 1108 Church St Norfolk 10 Va	
National Multiple Sclerosis Society	Mr Ralph F Colin New York	Mr Donald Vail 270 Park Ave New York 17	New York March 1957
National Proctologic Assn	R A Winters Chicago	George F Mueller 59 E Madison St Chicago 2	Chicago Oct 18-20
National Tuberculosis Assn	Howard W Bosworth, Los Angeles 26	Mrs Morrell DeReign 1790 Broadway New York 19	Kansas City Mo May 5-10
Neurosurgical Society of America	Joshua A Speigel Chicago 2	Frank P Smith 260 Crittenden Blvd Rochester 20 N Y	Palm Springs Calif Jan 16-19
Radiological Society of North America	Clarence E Hufford Toledo Ohio	D S Childs 713 E Genesee St. Syracuse 2 N Y	Chicago Dec. 2-7
Society for Investigative Dermatology	Maximilian E Obermayer Los Angeles 5	Herman Beerman 255 S 17th St Philadelphia 3	New York June 1-2
Society for Pediatric Research	William M Wallace Cleveland 6	Sydney S Gellis 330 Brookline Ave Boston 15	Carmel Calif June 19-21
Society for Vascular Surgery	Arthur H Blakemore New York 32	Henry Swan 4200 East 9th Ave Denver 20	New York June 2
Society of American Bacteriologists	C A Stuart Providence R I	J H Bailey Sterling Winthrop Res Inst Rensselaer N Y	Detroit April 28-May 2
Society of Biological Psychiatry	Margaret A Kennard Vancouver B C	George N Thompson 2010 Wilshire Blvd Los Angeles 57	Atlantic City N J June 15-16
Society of Clinical Surgery	Richard K Gilchrist Jr Chicago	F F Albritten Jr Univ of Kans Kansas City Kan	
Society of Neurological Surgeons	Edgar F Fincher Emory University Ga	Bronson S Ray 525 E 68th St New York 21	
Society of University Surgeons	Harold A Zintel Philadelphia 4	James Hardy Hospital of the U of Miss Jackson Miss	Columbus Ohio Feb 1957
Southeastern Surgical Congress	J O Morgan Gadsden Ala	B T Beasley 478 Edgewood Ave S E Atlanta 7 Ga	St. Petersburg Fla April 1-4
Southern Medical Assn	W Raymond McKenzie Baltimore 1	Mr V O Foster Empire Bldg Birmingham 3 Ala	Washington D C Nov 12-15
Southern Surgical Assn	Deryl Hart Durham N C	George G Finney 2947 St Paul St Baltimore 18	Boca Raton Fla Dec. 4-6
Southwestern Medical Assn	John Dettweiler Albuquerque N Mex	Russell L Deter 1501 Arizona St El Paso Tex	Albuquerque N Mex 1956
Southwestern Surgical Congress	John V Goode Dallas Texas	C M O'Leary 207 Plaza Court Bldg Oklahoma City	Wichita Kans. April 15-17
Student American Medical Assn	Mr Kent Guild Chicago	Mr Russell F Staudacher 310 N Dearborn St Chicago 10	Philadelphia May 3-5
The Endocrine Society	Warren O Nelson New York	H H Turner 1200 N Walker St Oklahoma City	
U S Section Internat'l Coll of Surgeons	Arnold S Jackson Madison Wis	Karl Meyer 1516 Lake Shore Dr Chicago	Chicago Sept 9-13
Western Industrial Medical Assn	Packard Thurber Jr Los Angeles 19	Edward J Zalk 740 S Olive St Los Angeles 14	
Western Orthopedic Assn	James Lytton Smith Phoenix Ariz	John Ricker 926 E McDowell Rd Phoenix	Phoenix Ariz. Oct 30-Nov 3
Western Society of Electro Encephalography	Arthur A Ward Jr Seattle	S N Berens 902 Boren Ave Seattle	
Western Surgical Assn	Charles G Johnston Detroit	John T Reynolds 612 N Michigan Blvd Chicago 11	Cincinnati Nov 29-Dec 1
Woman's Auxiliary to the Am Med Assn	Mrs Robert Flanders Manchester N H	Miss Margaret Wolfe 535 N Dearborn St Chicago 10	New York June 3-7
World Medical Assn	Karl Meiterberger Vienna 1 Austria	Louis H Bauer 10 Columbus Circle New York 19	Havana Cuba Oct 9-15

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*Smith, L. W The Present Status of Topical Chlorophyll Therapy, New York J Med 55:2041 (July 15) 1955

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of the American Medical Association

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EXPERIENCE WITH GASTRECTOMY AT A VETERANS HOSPITAL

George L Jordan Jr, M D., B F Bolton, M D
and
Michael E De Bakey, M D, Houston, Texas

• *The late results of gastrectomy were studied in 215 veterans of the armed forces from one to five years after the operation The results were strongly influenced by the nature of the lesions that had necessitated the operation In all of the 26 patients who had had gastric ulcer, the results of gastrectomy were good to excellent In the 141 patients whose ulcers had been duodenal, the results were poor in 22*

The symptoms leading to operation for duodenal ulcer were found to have some prognostic significance The best results were obtained in 46 patients treated for intractable pain and the poorest in 42 patients treated for either massive or chronic recurring hemorrhage

The data permitted analysis for other factors as well In particular, it was found that the results of surgery were equally good in the veteran and the nonveteran patient, and there was no evidence that financial compensation had any significant influence on the results of surgery for these benign lesions

The late results of gastrectomy in the treatment of benign gastroduodenal ulceration have been tabulated by a number of authors,[1] but none of these reports has considered the veteran of the armed forces as a specific problem Duodenal ulcer is a relatively common lesion among military personnel, particularly those stationed overseas Thus, many veterans who suffer from this disease have a service-connected disability Since compensation is an important consideration in the medical treatment of all veterans, there has been considerable speculation concerning the effect of compensation upon the results of treatment in various diseases This study was undertaken to evaluate the absolute results of gastrectomy at the Veterans Administration hospital in Houston, Texas, and also to attempt to ascertain the role of compensation in the end-results

Materials and Method

This study included all patients who underwent gastrectomy for treatment of benign gastroduodenal ulceration in the Veterans Administration hospital in Houston between April 1, 1949, and May 1, 1953 Of the 215 patients, 176 had complications of duodenal ulcer, 30 had gastric ulcers, and 9 had marginal ulcers after operation elsewhere Since the operative indications for duodenal ulcer may have a definite bearing upon the end-result, these will be discussed briefly Massive hemorrhage or several episodes of minor hemorrhage were considered definite indications for operation, as was cicatricial pyloric stenosis After Jan 1, 1952, gastrectomy was the treatment of choice for perforated ulcer A conservative attitude has been adopted toward intractable ulcers when pain is the sole symptom Almost all patients operated on with this indication had had symptoms for more than four years, and a definite effort was made to separate the patients with intractable ulcers from the "intractable patients" Four (1 9%) of the 215 patients in this series did not survive gastrectomy The operative fatality rate for the patients with duodenal ulcer was 2 3%, all deaths occurring in those treated for massive hemorrhage There were no deaths among patients treated for gastric or marginal ulcer

An attempt was made to examine thoroughly all surviving patients One hundred eighty-four (87%) of the 211 patients who survived operation were followed up for from one to five years (table 1) All but one of the 177 patients known to be living at the time of this study returned to the hospital for examination, in this patient the result was evaluated by questionnaire Patients were questioned in detail concerning post-gastrectomy symptoms, recurrence of ulcer symptoms, gastrointestinal bleeding, eating habits, bowel habits, weight change, smoking, alcohol intake, general ac-

TABLE 1 —*Distribution of Patients Undergoing Gastrectomy Followed Up from One to Five Years*

Indication for Operation	Patients No	Survivals No	Patients Followed Up No	Patients Followed Up %
Duodenal ulcer	176	172	149	87
Gastric ulcer	30	30	27	90
Marginal ulcer	9	9	8	89
Total	215	211	184	87

From the Cora and Webb Mading Department of Surgery Baylor University College of Medicine and the Surgical Service Veterans Administration Hospital tivity, and type of work A physical examination was performed, and, if the history or physical examination suggested any abnormality, appropriate laboratory and roentgenographic diagnostic examinations were performed All were asked to give their evaluation of the result In addition, they were questioned concerning the actual amount of compensation or pension received and the disability for which it was awarded Because many could not answer these questions, the official records of financial recompense were obtained for each patient, and the part of this report dealing with that subject is based upon these records

Definition of Terms

Postgastrectomy Syndrome—The postgastrectomy syndrome includes all postprandial symptoms that cannot be definitely attributed to a specific pathological entity such as marginal ulcer or intestinal obstruction Most patients with this syndrome complained of weakness, sweating, nausea, vomiting, and palpitation or some combination of these manifestations (dumping syndrome) Symptoms were classified as mild if they occurred only after the patient's eating of specific foods that could easily be eliminated from the diet without impairment of nutrition or if they occurred only after ingestion of a large meal Such symptoms were usually elicited only after detailed questioning and were of no concern to the physician or patient, as they were easily controlled Symptoms were deemed to be moderate if they occurred once or twice weekly despite elimination of known offending agents If symptoms occurred after almost every meal and were sufficiently incapacitating to interfere with normal activity, they were classed as severe

Rating of Results—Patients were questioned specifically concerning their opinion of their postoperative gastric condition as compared with their preoperative status Results were classified as "excellent" if the patient was enthusiastic about the operative result and was satisfied with his progress and as "improved" if he was significantly better but not completely free of symptoms The remainder of the patients were grouped in categories labeled "no change" or "worse" Results were also rated by the examining physician as "excellent," "good," or "poor," based on his examination and the patient's symptoms, nutrition, and ability to carry on normal activities The rating was poor if a marginal ulcer developed, if the patient had postgastrectomy symptoms severe enough to interfere with his normal activity, or if he was unable to maintain his weight at a level consistent with good health

Results

Duodenal Ulcer—Six of the 149 patients with duodenal ulcer who were followed up died in the late postoperative period (table 1) One died from a perforated marginal ulcer that was diagnosed only at autopsy Three died of unrelated causes, and the causes of death of the other two patients are unknown Development of extra-abdominal diseases that produced gastric symptoms precluded accurate evaluation in two additional patients, prior to this study, the result in one of these had been classified as excellent for three years postoperatively

Sixty-five (46%) of the remaining 141 patients who were traced had postgastrectomy symptoms (table 2) However, only 15% had moderate or severe symptoms, and several of the patients with moderate symptoms were not incapacitated enough to desire diagnostic or therapeutic procedures Seventy-two (52%) of these patients were able to eat three meals a day Many continued to eat meals more frequently because they preferred to rather than because their food intake was limited One hundred eleven (79%) considered their total daily food intake to be within normal limits, and 102 (72%) had maintained or gained weight Among those who had lost weight, some had deliberately lost the excess weight that had resulted from the preoperative high-caloric intake and others had lost only a minimal amount, so that in only 15 (11%) was loss of weight actually associated with difficulty in ingesting a satisfactory diet In no patient was loss of weight the only reason for classifying the result as poor, for all who had lost significant weight had additional symptoms

TABLE 2—*Postgastrectomy Symptoms in 175 Patients*

Indication for Operation	Total Patients Treated, No	Postgastrectomy Symptoms				
		Mild	Moderate	Severe	Total	
					No	%
Duodenal ulcer	141	43	17	5	65	46
Gastric ulcer	26	7	1	0	8	31
Marginal ulcer	8	4	0	1	5	63
Total	175	54	18	6	78	45

Of the 141 patients in this group, 117 (83%) continued to use tobacco and 48 (34%) continued to drink alcoholic beverages The proportion of patients who smoked and drank was no greater among the group with poor results than among those with good or excellent results However, all patients in whom marginal ulcers developed continued to smoke, and all except one continued to drink In this group of 141 patients, 109 (77%) are working and 112 (79%) consider their activity to be as good as or better than it was preoperatively, although not necessarily normal Some patients' activities were restricted because of disabilities unrelated to the ulcer or the operation

The condition was evaluated by the patient to be excellent in 38%, improved in 47%, unchanged in 13% and worse in 2% The classification by the examining physicians placed a higher percentage in the excellent group but also classified one more as having a poor result (table 3) Eighty-four per cent were significantly improved Eight of the 22 patients with poor results had the dumping syndrome with associated loss of weight, two had chronic afferent loop obstruction and three had a variety of nonspecific gastrointestinal complaints that, after thorough evaluation, were considered to be psychogenic Three patients had symptoms suggestive of a marginal ulcer, but roentgenography revealed no abnormalities, and no objective signs, such as bleeding, have occurred to permit a definite diagnosis In the remaining six patients, proved marginal ulcers developed, three of these patients were subsequently treated by vagotomy and re-resection, and in two of them results were excellent at the time of writing, two years later, while the third patient underwent operation too recently for evaluation One patient was treated with vagotomy alone, after which proved marginal ulcers developed, but his condition has been satisfactory for the 12 months prior to writing In one patient treated by diet antacids, and psychiatric measures, the result has been good The remaining patient, who has severe alcoholism, refused any type of treatment and continues to have difficulty because of marginal ulcers It has also been possible to relieve five additional patients of their symptoms, two by subsequent surgical procedures and three by conservative measures Consequently, by utilization of a conservative regimen or additional surgical measures, 92% may now be classified as having good or excellent results

Gastric Ulcer—One of the 27 patients with gastric ulcer who were followed up died of pneumonia two and one-half years after gastrectomy (table 1) Of the remaining 26 patients, 8 (31%) experienced postgastrectomy symptoms, all of which were mild or moderate (table 2) Sixty-nine per cent were eating three regular meals a day, 89% maintained or gained weight, and in none was loss of weight significant Eighty-one per cent were smoking, and 35% continued to drink varying amounts of alcohol Sixty-five per cent are working and 69% consider their activity to be as great as or greater than preoperatively Since the average age of this group is considerably higher than that of patients with duodenal ulcer a greater number have additional diseases Seventeen patients (65%) considered the results excellent, and nine (35%) considered themselves improved Our evaluations coincided exactly with those of the patients (table 3) There were no poor results

Marginal Ulcer—One patient of the nine with marginal ulcer could not be traced, the rest are living Postgastrectomy symptoms were experienced by five of this group (table 2), but in only one was this significant Only two are able to eat three normal meals daily, but five have gained or maintained weight and in only one instance has weight loss been severe All but one of the patients continue to smoke, and three continue to drink Seven of the eight patients are working, and six of them consider their activity as great as or greater than preoperatively According to the patients as well as our own evaluations, conditions were excellent in two, improved in five, and unchanged in one (table 2) In the one patient in whom the result was poor due to severe postgastrectomy symptoms, revision of anastomosis has resulted in freedom from symptoms during the 12 months prior to the time of writing Consequently, all results in this group may be considered good or excellent

TABLE 3—*Results of Gastrectomy in 175 Patients*

	Result						
	Excellent		Good		Poor		
Indication for Operation	No	%	No	%	No	%	Total
Duodenal ulcer	64	45	55	39	22	16	141
Gastric ulcer	17	65	9	35	0	0	26
Marginal ulcer	2	25	5	63	1	12	8
Total	83	47	69	39	23	14	175

In addition to the specific factors peculiar to gastrectomy, already discussed, certain other complications were encountered The two of importance are serum hepatitis and intestinal obstruction Of 178 patients who received blood transfusions during hospitalization, hepatitis subsequently developed in 5 (3%), but all made a satisfactory recovery Many patients, particularly those with massive hemorrhage received several blood transfusions, and consequently the ratio of hepatitis to transfusions is extremely low In nine patients (5%) intestinal obstruction developed, requiring further hospitalization in the late postoperative period Two had acute and two chronic obstruction of the afferent loop, and five had classic adhesive obstruction of the small intestine All were treated satisfactorily by surgical intervention

Influence of Compensation or Pension

No decision or recommendation concerning financial compensation was made by the physician treating the patient For evaluation of pension, a summary of the patient's hospital record was sent to the regional Veterans Administration office When an application for compensation or pension is submitted, it is acted upon by a board usually composed of a lawyer, designated as a claims-rating specialist, a physician, designated as a medical-rating specialist, and a third member, designated as an occupational-rating specialist These three members are Veterans Administration employees whose duties are usually limited to the adjudication of veterans claims

The terms "compensation" and "pension" are not interchangeable Compensation applies to financial recompense for service-connected disability The disability is rated from zero to 100%, the exact amount of compensation being based upon the percentage of disability and the number of dependents A pension is given for non-service-connected disability and is awarded only to persons considered to be permanently and totally disabled

Analysis according to the type of ulcer in this series revealed no statistically significant difference, consequently, the total figures for those patients with duodenal, gastric, and marginal ulcers will be presented There were 108 living patients with non-service-connected and 67 with service-connected disabilities No patient's pension or compensation was reduced after operation Of the 108 patients with non-service-connected disabilities, 39 did not receive a pension preoperatively or postoperatively Of these, 95% considered their condition to be improved or excellent and 5% thought there was no change Twenty-two patients had been receiving compensation for other disabilities preoperatively and were given no increase after operation, 17 were receiving maximum possible benefits prior to operation. Of the 30 (28%) patients given a pension after gastrectomy, 25 (83%) considered their conditions to be improved or excellent. Of the 67 patients with service-connected disabilities, only 2 received no pension at any time In one of these the rating was excellent, and in the other it was improved Five received no increase, and three were receiving maximum benefits at the time of operation Excluding the last three patients, 89% of the patients with service-connected disabilities received an increase in pension after gastrectomy

Of particular interest is the number of patients who considered their condition improved as compared with their preoperative status A pension was granted to 25% of the patients with non-service-connected disabilities in this category, 80% of whom were working (32% regularly and 48% part time) In the group with service-connected disabilities, 85% received an increase in pension and a similar percentage were working (67% regularly and 17% part time)

Comment

When this study was undertaken, the question was raised concerning the possibility that the patients might accentuate their postoperative symptoms in order to increase their compensation The results of this study do not support this opinion In fact, there were only two patients in the entire series who were believed to have misrepresented the severity of their symptoms This conclusion is also borne out by the fact that these results in veteran patients closely parallel those reported in patients presumably drawn from the general population [1]

The results of the treatment of gastric ulcer were gratifying We are of the opinion that subtotal gastric resection is the treatment of choice for gastric ulcer, but we are content with less extensive resection than that used for duodenal ulcer The Billroth 1 and various modifications of the Billroth 2 procedures were used in this study There was no significant difference in results obtained by the various types of anastomoses used

The results obtained in patients with duodenal ulcer were analyzed from the standpoint of the complication for which operation was performed Of the 23 patients treated for perforation, results were good or excellent in 83% Of the 42 patients who were treated for either acute massive hemorrhage (14 patients) or for chronic recurring hemorrhage (28 patients), results were good or excellent in 79% Good results were obtained in 83% of 30 patients treated for obstruction and in 91% of 46 patients treated for intractability The poorest results were obtained in the 28 patients treated for chronic recurring bleeding, as results were good in only 72% of these The fact that the highest percentage of good results was in those patients treated for intractable pain is a reflection of the selection of patients

The results obtained in patients with duodenal ulcer were also analyzed according to the length of time that had elapsed since operation There was no statistically significant difference in the percentage of poor results in patients followed up for more than three years and in those who had been followed up for a shorter period of time This is a reflection of the fact that in this group of patients most of the postoperative difficulties leading to the classification of the result as poor occurred relatively early in the postoperative period Thus, in 20 of the 22 patients so classified, the difficulty developed within one year, and in the remaining 2 it developed in less than two years after operation Whereas no result classified as good at the end of two years subsequently had to be classified as poor, several of the patients in whom the result was classified as poor early in the postoperative course were relieved of their symptoms by additional surgical procedures or a medical regimen, so that, at the time this study was undertaken, results in 94% of the patients followed up for more than three years could be classified as satisfactory Consequently, in such cases gastrectomy may not be the final therapeutic procedure but must be considered an adjunct in the over-all management of the patient If this attitude is taken, the proper application of a combination of therapeutic procedures will result, with the passage of time, in an increasing number of asymptomatic patients rather than an increasing percentage of poor results

The incidence of marginal ulcer was 4 8% in the group of patients treated for duodenal ulcer This incidence is somewhat higher than that reported by some observers [1c] Fortunately, however, these were controlled satisfactorily except in two patients, one of whom refused further therapy The diagnosis was made only at autopsy in the other patient The number of marginal ulcers treated, including those developing postoperatively here and elsewhere, is small in comparison with that in recently reported series [2] However, our results from re-resection alone or combined with vagotomy have been good Only a few patients have been treated by vagotomy alone, but the results obtained were not as good

Summary

A study was made of the results of gastrectomy in 215 armed forces veterans, 87% of whom were followed up for from one to five years Results were listed according to the indication for gastrectomy Of the 141 patients with duodenal ulcer, results were excellent or good in 119 and poor in 22 In all 26 patients with gastric ulcer, results were excellent or good The result was poor in only one of the eight patients with marginal ulcer Thus, results were excellent or good in 152 (87%) of the 175 living patients who were followed up This study suggests that the results of treatment of duodenal and gastric ulcers by subtotal gastrectomy in the veteran patient are equally as good as those obtained in the nonveteran patient, and financial compensation does not significantly influence the results of the treatment of benign lesions by gastrectomy

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RELATIONSHIP OF SIGNIFICANCE OF WOUND TO PAIN EXPERIENCED

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• *The frequency of pain severe enough to require a narcotic was studied in 150 male civilian patients and contrasted with similar data from a study of wartime casualties Efforts were made to have the two groups comparable in essential respects and to make sure that existing differences, such as age and past illness, between the two groups did not influence the results The group of soldiers had very extensive wounds, were clear mentally, and were not in shock, many had had no morphine at all, yet less than one-fourth said, on being questioned, that they had enough pain to want anything done about it The percentages of patients desiring narcotics were 32 and 83 for the military and the civilian groups respectively*

There was no dependable relation between the extent of a pathological wound and the pain experienced No significant difference was found between the pain of sudden injury and that of chronic illness The intensity of suffering is largely determined by what the pain means to the patient This emphasizes the impossibility of appraising, by current experimental techniques at least, the power of analgesic agents in man It also means that the indiscriminate administration of powerful analgesics to all injured individuals is unsound

Probably everyone who is accustomed to working with pain of pathological origin has been puzzled by the lack of any obvious correlation of extent of wound with pain reported by the patient Certainly the degree and duration of pain from any given wound is essentially unpredictable This was nicely put more than a hundred years ago On writing of gunshot wounds in the Peninsular War, Guthrie[1] said, "in two persons suffering apparently from the same kind of injury, and with the same detriment, one will writhe with agony, whilst the other will smile with contempt" Also, Dupuytren[2] was quoted in 1836 as saying

> What a difference there is in the morale of those we treat in civil hospitals and those hit by murderous fire on the field of battle! The military man is accustomed to forgetfulness of self and familiar with the prospect of mutilation He considers himself happy if he saves his life yet loses an extremity And as long as he is assured of security he faces with courage even joy the scalpel of the surgeon But look at the unfortunate laborer, the farmer or the artisan whose work is the only resource of a large family He is obsessed by fear misery awaits him His is a profound sorrow a dark hopelessness He accedes only with regret to the insistence of the surgeon One should not be surprised by the difference in results!

Until recently it had seemed impossible to bring any order into this apparent chaos

During the compiling of evidence to test the hypothesis that suffering consists of two principal factors, the initial sensation and the reaction to sensation, a possible clarifying situation emerged It should be mentioned that the hypothesis referred to is more than 60 years old It goes back to Marshall[3] and to Strong[4] Factual evidence in support of the interesting speculations of Marshall and Strong has been obtained in the anesthesia laboratory at Massachusetts General Hospital and has recently been summarized[5] When this evidence is examined as a whole, it carries strong indication that the reaction phase or processing phase is very often of more importance in suffering than is the original sensation The data to be presented here are in line with this view

The hypothesis mentioned has been tested as follows A number of years ago I had an opportunity to study a large group of men recently wounded in battle[6] Data on these men were collected chiefly on the Anzio Beachhead, where the men studied had been subjected to almost uninterrupted shell fire for weeks Notable in this group of wounded soldiers was their optimistic, even cheerful, state of mind It is important to remember that these men were interviewed in a forward area very shortly after having been brought from the battlefield to the field hospital, from an area of desperate anxiety to an area of relative safety They thought the war was over for them and that they would soon be well enough to be sent home It is not difficult to understand their relief on being delivered from this area of danger The battlefield wound marked the end of disaster for them, or so they thought

The present study was set up to contrast those data with the incidence of pain severe enough to require a narcotic in a series of civilians subjected to surgery The civilian s surgical operation is viewed as a depressing, calamitous event by most people Here, then, are two groups of individuals, each with severe tissue trauma In the one case, there was sudden relief from almost overwhelming anxiety, and the injury was viewed as good fortune, in the other case, the injury was viewed as disaster and was fraught with anxiety The comparison of interest is the frequency of pain reported in the two situations The tissue trauma inflicted by the surgeon is, for the categories studied (intrathoracic, intra-abdominal, and bone surgery), far less than that of wounds in the same regions inflicted by high explosive shell fragments (see table), yet, as shown, the pain arising from the surgeon s wounds was far greater than it was from the war wounds The crucial difference appears to lie in the significance of the two wounds and in the reaction of the patients to each

Method and Data

To get at the question of pain in the earlier study, the wounded man was asked several carefully phrased questions, "As you lie there, are you having any pain?" (Care was taken to be sure the patient understood the

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From the Anesthesia Laboratory of the Harvard Medical School at the Massachusetts General Hospital question) If the answer was "no," that part of the questioning was dropped If "yes," further inquiry was made 'Is it slight pain, or moderate pain, or severe pain?" There was usually little hesitation in differentiating Those who said they were having pain of any degree were asked if the pain was great enough so that they wanted something to relieve it (Incidentally, it very early became apparent that morphine was an unfortunate word to use, and its use was avoided To the layman, morphine is a frightening word, the wounded men were alarmed by the implication that they were 'bad enough" to need this agent) Only males were considered in both groups So much for general procedure

The striking thing about the war wounds and the men involved was their comparative freedom from pain Although the soldiers chosen for study all had very extensive wounds, only men who were clear mentally, who were not in shock, and who had had no morphine for at least four hours were chosen for study, many had not had any morphine for seven hours or more, and 36 had not had any at all Excluding those who had had no morphine, the average time since receiving morphine was 6 4 hours Only one-quarter of the entire group of men, when questioned 7 to 12 hours after being wounded, said they had enough pain to want anything done about it (The figure is one-third for the three categories studied here bone, thoracic, and abdominal wounds) Their statements were made in response to a direct question, which of course reminded them that analgesic agents were available if they wanted them These severely wounded men did not have a general block of the pain experience, for they complained in a normal manner at rough handling of their wounds, or at inept venipunctures The same interrogation procedure as described above was followed in the present study of surgical patients

Comparison of the Frequency of Pain Severe Enough to Require a Narcotic in Two Situations, War Wounds and Civilian Surgical Wounds[*]

Circumstance			Trauma to Bones	Intrathoracic Trauma	Intra Abdominal Trauma	Total %
War wounds	Pain	none	19	15	7	
		slight	12	18	5	
		moderate	7	11	14	
		severe	12	6	24	
	Narcotic wanted	yes	11	10	27	32
		no	39	40	23	68
	No of patients		50	50	50	
	Age, yr		24 8±0 9	24 5±0 8	22 7±0 6	
	Time since trauma hr		12 5±1 8	9 8±1 0	7 2±0 7	
Civilian surgical wounds	Pain	none	5	5	1	
		slight	14	4	8	
		moderate	17	17	21	
		severe	14	24	20	
	Narcotic wanted	yes	38	42	45	83
		no	12	8	5	17
	No of patients		50	50	50	
	Age yr		45 5±2 3	49 2±2 0	62 6±1 9	
	Time since trauma, hr		4 4±0 3	3 0±0 3	4 3±0 4	

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[*] Data based on 300 male patients

If the extent of tissue trauma had any fixed relationship to the pain experience, there was every reason to suppose that those with war wounds would have more pain, both in frequency and in degree, than those who had the lesser wounds of surgery As shown here, the opposite was the case (see table) The important difference in the two situations seems to be in the interpretation of the wound In the one case the war wound marked the end of disaster, the victims thought, and was associated with relatively little pain In the other case, the surgery, although involving much less trauma, spelled disaster for the patient It was associated with far more pain than were the war wounds These data support the view that the reaction or processing component of suffering is at least as important, probably more so, than the original sensation This is not to deny that wounds and pain often go together, but often they do not, as well Clearly important factors besides trauma to nerve endings have importance here It has been suggested that the violence of war wounding happily carries with it analgesia There is no evidence to support such a view in individuals whose central nervous system is undamaged Such an occurrence, if it existed, would be fascinating indeed It seems unlikely that a bone cut by the surgeon's chisel or the femur fractured by the family automobile in a crash is any different physically from the femur fractured by a blow from a shell fragment

Comment on Civilian Data

Age —An obvious difference between the two groups shown in the table is age This appears not to be important as far as the present thesis is concerned 20 civilians fell in the 17-to-30-year age group, similar to the soldiers, 18 (90%) of these civilians had pain severe enough to want a narcotic Fifty-seven civilians fell in a second 13-year period, age 50 to 63, and had pain severe enough to want a narcotic in 50 (88%) of the cases

Anesthetic Agents and Time of Interview —Patients receiving thiopental sodium with nitrous oxide and a muscle relaxant recovered consciousness sooner than those receiving ether and were ready for interview correspondingly earlier The incidence of those having sufficient pain to want a narcotic is not significantly different in the two groups The data are as follows For the patients receiving a muscle relaxant, the interview time averaged 2 9 hours after the completion of the surgery, with 87% having sufficient pain to want a narcotic For the patients receiving principally ether, the interview time was 4 7 hours after completion of surgery and the percentage wanting a narcotic was 84

It should be added that 50% of the patients receiving a muscle relaxant had had a narcotic by the time of the interview, whereas 43% of those receiving ether had Any important difference is questionable If there is any difference at all, it is doubtless because of the fact that consciousness is recovered earlier when the thiopental muscle-relaxant sequence is used than is the case with ether Notwithstanding the somewhat greater frequency with which the patients had received a narcotic before the interview in the muscle-relaxant group, 54% of this group of 54 patients, on interview, had pain characterized as severe, 33% had moderate, 7% had slight, and 6% had none In the ether group, only 31% of a total of 74 patients had pain characterized as severe, 40% had moderate, 20% had slight, and 9% had none The earlier and possibly more frequent administration of a narcotic to the muscle-relaxant group has not obscured the fact that pain is very frequently present in this group and of a severe degree, even severer than was true of the ether anesthesia group The thesis of this study is supported, for the percentages 87 and 84 (see above) of those having pain severe enough to want a narcotic are not different for the two types of anesthesia

Duration of the Pathological State —It is only fair to point out that the wounded soldiers have had their disability suddenly thrust upon them It should also be borne in mind that the soldiers' trauma continues during the ambulance haul over the inevitably rough roads of the battle area until he enters the forward hospital This rough handling is especially serious in the case of fractures of long bones, for splinting is never perfect As for the other group, one might suppose that the patient subjected to long illness would be more likely to complain of pain and ask for an analgesic agent sooner than one whose surgery was a sudden necessity, however, this did not prove to be the case Of the patients subjected to operations associated with long illness, 46 in a random sample (gastrectomy, esophagectomy, aortic graft, "cup" arthroplasty to hip, spinal fusion), 87% wanted a narcotic at the interview Of the patients not subjected to long illness preceding surgery, 20 in a corresponding random sample (fracture of bone, cholecystectomy, appendectomy, lithotomy), 90% wanted a narcotic Thus, long duration of the disability does not appear to be a factor

Pathological Pain Versus Experimental Pain

It may be remarked that the data presented here, confirming as they do the unrelatedness of the extent of a pathological wound and the pain experienced, cast further doubt on the usefulness of experimental pain in man for the purposes to which it has so far usually been put[7] and, conversely, support the use of pain of pathological origin for work in this field Some discussion of this point is indicated, for the data presented here strongly support the importance of the reaction component of suffering (see above), and this lies at the heart of the controversy on experimental versus pathological pain

There are many ingenious methods of producing pain for experimental purposes electric shocks to teeth, pricks of the skin, ischemia of muscles, heat to the forehead, and so on All of these methods have one thing in common, and that is the assumption that the more nerve endings are traumatized, the more the pain experienced Scores of such studies have been made, and often these even deal with complex minutiae of the situation

Examination of the pain arising in injury or disease indicates that this basic assumption of many experimentalists does not hold true Presumably one of the reasons for studying experimental pain is to learn something about pain of pathological origin, its cause, its mechanism, and its therapy In view of the findings presented here, it seems that experimental pain in man as employed so far has little to offer in the appraisal of the analgesic power of these agents There are, clearly, basic differences between pain of experimental origin and pain from pathological sources This fact has not been given the attention it deserves The lesser wounds of civilian surgery have more pain associated with them than do the greater wounds of warfare It is evident that there is also a qualitative difference here (for some wounds are painless) This appears to be determined by the significance of the wound

There is an abundance of evidence to indicate that experimental pain methods in man do not work as well as has been thought for the appraisal of analgesic agents Experimental pain in man certainly has other established uses, as, for example, in determining the anatomy of the pain apparatus The most carefully presented and fully studied experimental pain method is that of Hardy, Wolff, and Goodell[8] Some 15 groups of investigators have now been unable to confirm many of their observations,[7] particularly as their work relates to analgesic agents In the second place, experimental pain in man might have wider usefulness if it could be possible to separate it from the reaction phase The evidence against this having been done (for experimental pain) to date has been summarized elsewhere[7] This is not intended to imply that it will never be done

It is important to make the following point clear What is said relates to man and not to animals There is much reason to believe that the situation is different in the two species Unlike the situation with experimental pain in man, in animals the effect of powerful analgesic agents on experimental pain leads in many hands to reproducible results As pointed out before,[5] presumably all pain is serious and significant to an animal to the extent that experimental pain never is to man Thus the reaction of the animal to experimental pain is likely to be the same as for pathological pain, the two are not differentiable to the animal This makes experimental pain in an animal comparable to pathological pain in man, if reaction to the original sensation is as important as it seems to be in the pain experience

General Observations

The data accumulated here indicate something more than the limited usefulness of experimental pain in man, namely, they indicate that some factor other than the extent or degree of wounding is of principal importance in the pain experienced It has seemed profitable to search for this other factor or factors From the evidence presented above, it seems reasonable to conclude that reaction to the original pain sensation is a very important factor in suffering There may be other important factors that merit examination In any case, the nature of this reaction and the factors that influence it are poorly understood and need study It is not inconceivable that ingeniously devised experiments that utilize pain of both pathological and experimental origin may be useful not only as mentioned but also in investigation of the influence of fatigue, adaptation, and focus of attention on the pain experience Work in such a direction is now in progress in the anesthesia laboratory at Massachusetts General Hospital

The dangers of conclusion based upon causality are well known It has been shown, however, that, in a situation where the anxiety level is high, as in civil surgery, wound pain of sufficient degree to require narcotics is far more common than it is in a situation where desperate anxiety (fear of sudden death on the battlefield) has been replaced by a far lesser worry (a wound) It can be pointed out that this finding is in accord with several other types of observations Malmo and Shagass,[9] in a study of the effects of experimentally induced thermal pain in normal subjects and in pathologically anxious patients, found when they studied striated muscle activity such as finger movements and neck muscle potentials that the greater the degree of anxiety as reflected in the muscular activity the greater the frequency with which pain was signaled The differences are statistically reliable Their data also show that the more severe the anxiety, the greater the overreaction to painful stimuli Their findings corroborate earlier observations of Chapman, Finesinger, Jones, and Cobb[10] that the threshold values of thermal pain stimulation are higher in controls than in psychoneurotic patients (half of whom were suffering from anxiety) as far as motor reaction to pain is concerned These findings, which deal with experimental pain, appear to have an analogue in the clinical findings, reported in the present study that pathological pain was encountered far more frequently in a situation filled with anxiety than in one in which tremendous anxiety has been greatly lessened Observations complementing these are those of Hill, Kornetsky, Flanary, and Wikler[11] and Hill, Belleville, and Wikler,[12] in which they appear to show in an interesting experimental situation that morphine relieves anxiety and hence, they believe, relieves pain In our findings, when there was more anxiety, more pain appeared In the two circumstances there seems to be an important relationship between pain and anxiety In our situation, when anxiety was present, the incidence of pain increased, in the Lexington group, when anxiety was relieved, pain was relieved Since such different approaches lead to the same conclusion, it seems unlikely that a false attribution to causality could explain all of these observations

Dubos[13] has summarized the evidence to show that the etiology of most diseases has several components It is now clear that those two strong characters, Pasteur and Koch, pressed too narrowly for their "doctrine of specific etiology" (a given microbe for a given disease) and that there is something to be said for the reserve Pidoux and Virchow showed during what might be called the overestablishment of the doctrine of specificity of cause of disease It is now known that in nearly all infectious and metabolic diseases physiological and environmental factors enter to determine the disease process The human body is full of latent infectious organisms that act in disease processes only under special physiological or environmental conditions In the work presented here, we can pursue this view of nonspecificity even further and apply it not to a disease but to a symptom of disease A wound is not alone the cause of pain, the significance of the wound may be the paramount factor in determining the production of pain Hardy, Wolff, and Goodell[14] in attempting to generalize concerning the pain experience have said, "The adequate stimulus for pain sensation is the damaging of tissue" From the data given in this present study, this is clearly not the case great tissue damage can be produced without pain being experienced Neither the wounding nor the wound is at times an adequate stimulus for pain

Summary and Conclusions

In a situation in which a wound has great advantage and means escape from overpowering anxiety and fear of death on the battlefield (war wounds terminating military service), extensive wounds are associated with comparatively little pain In a situation in which the wound connotes disaster (major surgery in civil life), lesser wounds are associated with far more pain than in the former situation The essential difference appears to be in the difference in anxiety level in the two cases, in the attitude of the patient, and in his reaction to his wound The findings reported here support the 60-year-old concept of the importance in suffering of the reaction component as opposed to the original pain sensation

In experimental pain it might seem possible to control the "reaction or processing component" of suffering and, therefore, to measure the action of analgesic agents on the "original sensation" Since many different and widely separated groups of careful investigators have failed to confirm this, it appears reasonable to conclude that analgesic agents have in the experimental situation relatively little effect upon original sensation but very great effect upon the reaction component, since with pain of pathological origin when the reaction is apparently great, consistent and reproducible effects of analgesic agents can be demonstrated Thus analgesic agents appear to have their principal action on the reaction component

Extent of wound bears only a slight relationship, if any (often none at all), to the pain experienced This fact fails to support the relevance of experimental pain work to the pathological pain experience The concept underlying all experimental pain methods, that the more severe the stimuli to nerve endings, the more the pain, does not hold for pathological pain Thus the usefulness of experimental pain methods in man for the purposes to which they have often been put (evaluation of the analgesic power of narcotic agents) is questionable Just as the doctrine of specific etiology of disease falls short, so also is the relationship not precise between cause and a symptom of disease (injury) as far as a wound and resulting pain are concerned The level of anxiety is important in considering the production of pain The unfortunate and common practice of administering powerful analgesic agents to all injured individuals is clearly unsound A considerable number of such patients may not have pain In others alteration of mood, as for example relief of anxiety, can have beneficial effect In short, even a great wound is not necessarily an "adequate stimulus for pain"

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"ATHLETIC PSEUDONEPHRITIS"—ALTERATION OF URINE SEDIMENT BY ATHLETIC COMPETITION

Kenneth D Gardner Jr, M D., Philadelphia

• Urine specimens were obtained from 47 football players who had passed complete physical examinations and denied renal disease Each submitted at least one normal specimen together with additional specimens before and after games or strenuous practice

Each day was scored as to the severity of the required exertions and this score was found to be roughly proportionate to the frequency of abnormalities in the urine On no day did every member of the squad submit a completely normal specimen In addition to protein, the more unusual types of formed elements appeared in 27 of the 424 urine specimens examined these included red blood cell casts in 10, epithelial casts in 7 broad casts in 3, and white blood cell casts in 3 During the study, gross hematuria appeared in one subject In every instance, the abnormalities disappeared when the daily exercise was made less severe

These findings explained the spontaneous recovery of an athlete whose history of gross hematuria, which is given in some detail, had raised the suspicion of acute glomerulonephritis

My interest in urinary sediment changes after exercise resulted from seeing a young male who entered the student health service of the University of Pennsylvania on Sept 6, 1955 complaining of a sore throat of eight days' duration and tea-colored urine of six hours duration

Report of a Case

An 18-year-old male was referred from the preseason football training camp where he had reported two days after developing a severe sore throat at home on Aug 30 At camp the initial therapy by the team physician consisted of gargles acetylsalicylic acid and fluids As the student was not febrile nor more than slightly annoyed by his symptoms he was allowed to enter into the full training program No subjective improvement had occurred by Sept 3 and 600 000 units of procaine penicillin G were given intramuscularly on that and the following day After an active scrimmage on Sept 5 the man noticed that his urine had become the color of "strong tea A second specimen obtained three hours later was again that color and he was sent to the Hospital of the University of Pennsylvania for admission On entry he denied the presence of headache backache or the reception of unusual trauma to the back or abdomen He also denied previous hematuria previous renal disease contact with poison ivy and recent insect bites The family history was negative for renal disease

The physical examination showed a healthy young male in no distress, with blood pressure of 140/90 mm Hg The oropharynx was reddened and speckled with white exudates Bilateral cervical lymphadenopathy was present There was no costovertebral angle tenderness, and the remainder of the examination gave normal results The hemoglobin level was 12 1 gm per 100 cc and the white blood cell count was 6 900 per cubic millimeter, with a normal differential The urine had a specific gravity of 1 030 and was acid in reaction it contained a trace of protein innumerable red and white blood cells and occasional granular and white blood cell casts Diagnosis of acute glomerular nephritis was made and the patient was placed on therapy with bed rest, acetylsalicylic acid and 600,000 units of procaine penicillin G intramuscularly every six hours

The subsequent clinical course and laboratory studies did not substantiate the diagnosis Blood pressure remained well within the normal limits, averaging 120/75 mm Hg The temperature did not rise above 98 6 F (37 C) orally His fluid output remained well above oliguric levels averaging 1,150 cc every 24 hours Throat culture did not reveal the presence of hemolytic streptococci antihyaluronidase and antistreptolysin titers were in an intermediate range but were felt to be too low for acute glomerular nephritis Further urine specimens were free of albumin and showed progressive disappearance of casts and red blood cells until the third hospital day On that day the urine contained a sudden shower of red blood cell casts, considered identical with those seen in acute glomerular nephritis Over the next 24 hours these disappeared entirely and urinary examinations showed normal results for the remainder of his 10 day hospitalization

By the 10th day the sore throat and cervical lymphadenopathy had disappeared the hemoglobin level was reported at 14 3 gm per 100 cc After a staff conference it was concluded that the clinical picture was probably that of football hematuria" with associated pharyngitis even though red blood cell casts had occurred in the urine for one day With that diagnosis the patient was discharged During a two week period of observation at home both physical examinations and urinalyses daily failed to reveal the presence of disease. At the end of that time he was allowed to return to active participation in football Through three months of follow-up he has shown no clinical evidence of nephritis Results of the urinalyses have been included in the study presented below These were usually normal but on occasion demonstrated the abnormalities found in the urinalyses of his fellow teammates His gross hematuria has not recurred

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From the Hospital of the University of Pennsylvania

The interesting clinical course of this patient led to a search of medical literature for articles describing the effect of exercise on the urinary sediment, and several reports were found It was more than 200 years after Dekkers[1] first observed that protein might occur in the urine and over 50 years after Bright correlated proteinuria and renal disease[2] that Collier,[3] in 1907, demonstrated proteinuria in the urinary collections of crew racers after a race Casts were first seen in the urine in 1843,[4] and in 1844 Henle[5] showed their renal origin Barach was the first to describe the presence of casts in athletes' urine, when he reported a study of the urines of 19 marathon runners after a 40-km race[6] He found proteinuria and cylindruria in all 19 specimens and red blood cells in 18 Several of the specimens were grossly bloody One week and three weeks after the race he found protein and casts in fewer specimens In 1920 Barach followed up his original study with a report[7] of the urinary sediments obtained from track and baseball participants He found that after 40 minutes of exercise the urines contained protein, hyaline and granular casts, and red blood cells He noted further that the casts were both narrow and broad and that each variety contained red and/or white blood cells He stated that removal from daily exercise resulted in prompt disappearance of the sediment abnormalities

Results obtained by Amelar and Solomon in 1954[8] provided support for Barach's work These men examined the urines of 103 professional boxers immediately preceding and shortly after fights and found that 68% of the specimens showed proteinura, 73% red blood cells in pathological numbers, and 26% hyaline or granular casts While they felt that the hematuria was the result of trauma to the kidney areas, they did not mention Barach's study of participants in sports involving apparently much less direct trauma to the renal areas In 1955 Boone and his associates[9] found hematuria, proteinuria, and cylindruria in the urinary sediments of football players after an active scrimmage or game It was noted that sediment abnormalities present on Wednesday usually disappeared by Saturday if the man did not participate in the week-end game No article describing a higher incidence of kidney disease in the athletic portion of the population could be found From the literature, therefore, evidence was available to indicate that athletic competition resulted in alteration of the urinary sediment to some degree The problem of whether such competition could result in the appearance of the red blood cell cast in the urinary sediment, long considered to be a grave diagnostic and prognostic sign, was not satisfactorily answered Accordingly, the following study was made

Materials and Methods

Through the cooperation of the team physician, coach, team managers, and the players themselves, urine specimens were collected from the 47 members of the 1955 University of Pennsylvania varsity football squad Every man had passed a complete physical examination at the beginning of the year, and all denied renal disease Urine specimens were obtained after daily practice and Saturday games for a two-week period during midseason Any players suffering from rhinorrhea, pharyngitis, and/or otitis on any day or days of the study was asked to report this as "illness" Physical exertion during practice and the games was estimated in degrees ranging from 0 on days when no practice was held through 3+ to 5+ on days of a game, no physical contact occurred on days rated 1+ The specimens collected were inspected for color and examined for pH and specific gravity, after centrifugation the sediment was studied for cells, casts, and other formed elements Protein was detected by the addition of sulfosalicylic acid to the supernatant fluid An "abnormal" urine was considered to be one showing at least 1+ protein and at least 3 red blood cells per high-power dry field, or at least 5 casts per high power dry field A specimen was "very abnormal" if, in addition to containing protein, it contained more than 10 red blood cells per high-power dry field and/or more than 20 casts per high-power dry field of the centrifuged sediments

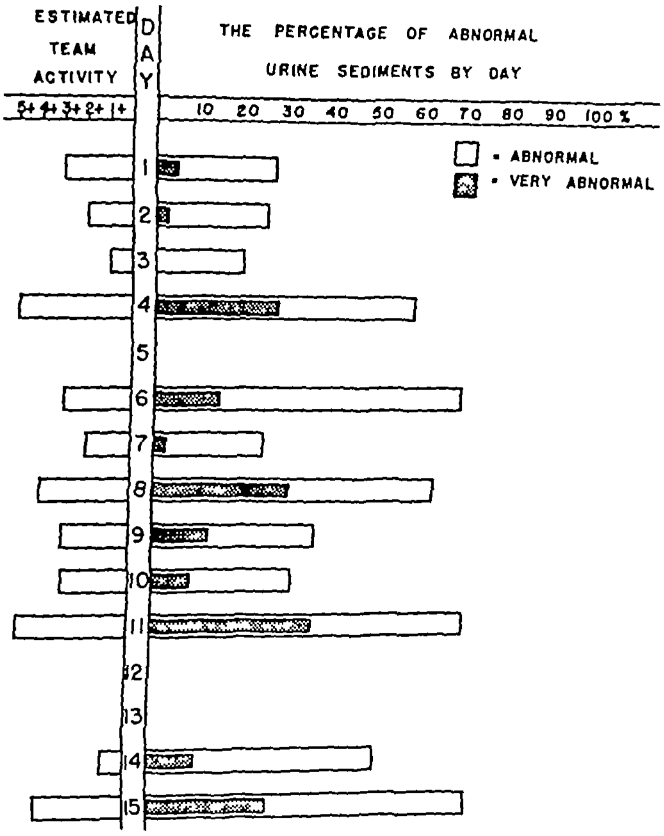

Fig 1 —Influence of physical activity on production of urinary sediment abnormalities such as albumin casts and/or red blood cells

Results

The study covered the period from Nov 1 to Nov 15, 1955, and total of 424 urine specimens were obtained on 12 days during this interval Each of the 47 men submitted at least one entirely normal specimen for examination, thus furnishing his own control Of the 424 specimens, 190, or 44 8%, met the criteria established for abnormal urine With six exceptions all urine specimens containing abnormal elements were acid to litmus paper The volumes of a large proportion of the specimens were too small for determination of specific gravity Therefore, this feature was not included in the final analysis In figure 1 the percentages of abnormal and grossly abnormal urinary sediments found in the urine specimens examined each

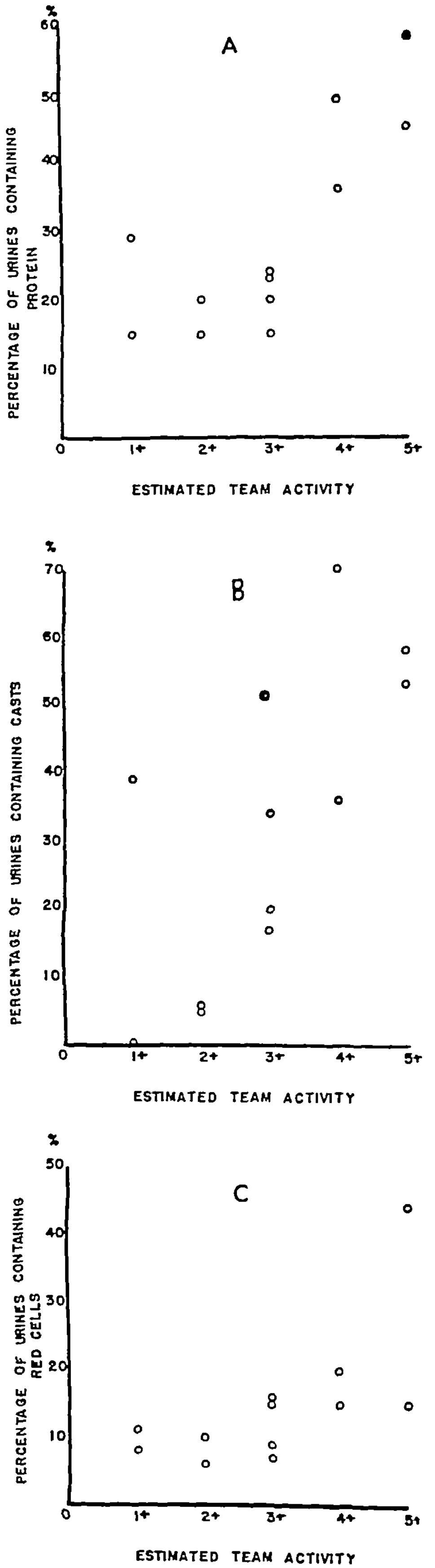

Fig 2.—In relation to increasing physical activity *A*, proteinuria *B* cylindruria *C* hematuria microscopically

day are shown. The occurrence of protein is related directly to the estimated team activity in figure 2*A*. Similar relationships are plotted for casts and red blood cells in figure 2*B* and *C*. From these figures it becomes apparent that increasing urinary sediment abnormalities are related to increasing team activity. It is to be noted that on no day did every member of the squad submit a completely normal specimen. Figure 3 presents a comparison of the sediments found in the urine specimens of the participants and the sediments from the specimens of nonparticipating players after each of the two games included in the study period. In both groups the sediments were comparable on the day preceding the games, while only the participating group developed marked changes in urinary sediment after the games. After the first light practice a few days later, cylindruria was present in both groups, but red blood cells continued to appear only in the urine specimens of the participating group.

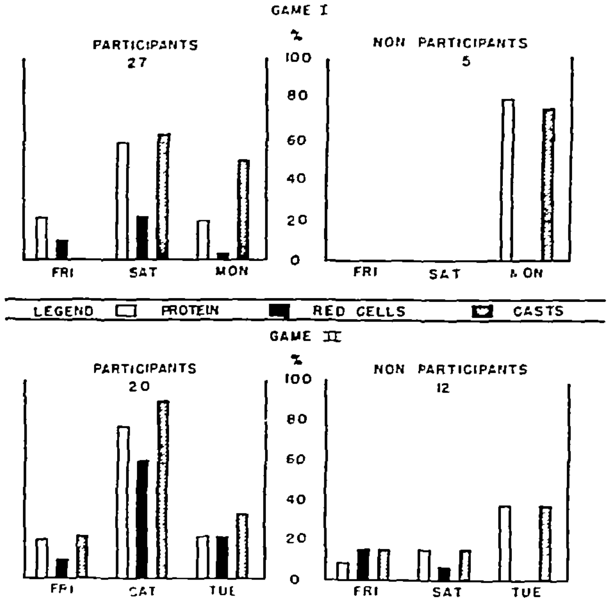

Fig 3.—Persistent hematuria 48 and 72 hours after participation in two football games with nonparticipating group as control

The more unusual types of formed elements occurred in 27 of the 424 specimens (6.4%) but, more significantly, in the specimens obtained from 13 of the 47 men (28%) participating in the study. Red blood cell casts, seen in large numbers, were found in 10 specimens, epithelial casts in 11, broad granular casts in 3, and white blood cell casts in 3. The sediment in one urine specimen, showing the usual elements plus a broad granular cast (containing coarse granules), can be seen in figure 4. Figure 5 shows a red blood cell cast in a specimen containing free red blood cells. During the study, gross hematuria occurred in only one subject. It appeared after the second game, and four days later the urine was found to contain many red blood cell casts. A physical examination and titrations for streptococcic infection were negative. The urine had cleared completely by the seventh day. Twenty of the 47 men submitted a total of 52 urine specimens accompanied by a report of "illness." Seventeen (33%) of these specimens were found to be abnormal. This percentage is less than the percentage of abnormal specimens obtained from the entire group This was expected, since some players did not report for practice when ill and since those who did practice did so less enthusiastically because of their sickness

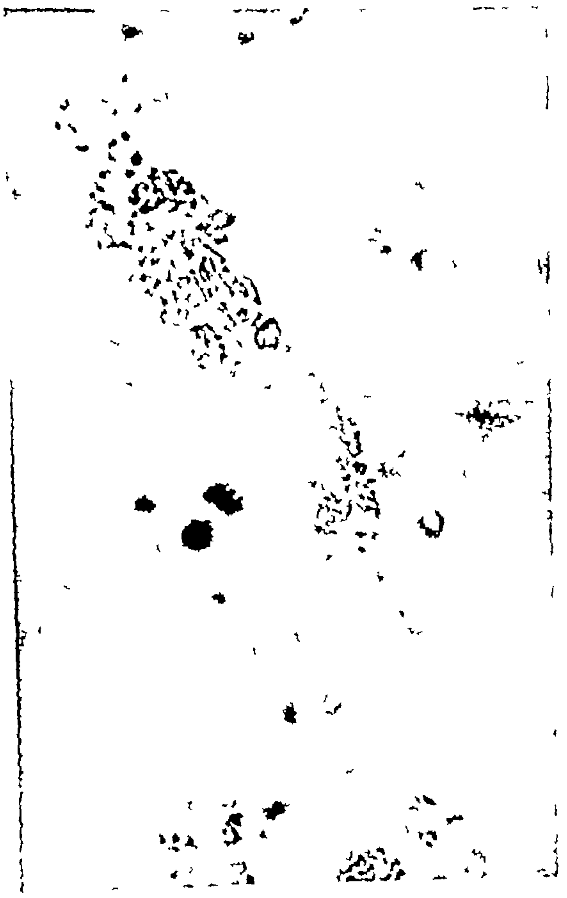

Fig 4 —Reproduction of color slide showing urinary sediment with broad and narrow casts of football player immediately after practice (× 120)

Comment

This study is intended to confirm and reemphasize the fact that formed elements heretofore considered almost pathognomonic of parenchymal renal disease may appear in the urine of a player during the athletic season without other evidence of glomerular nephritis These elements most frequently are protein, hyaline and granular casts, and red blood cells, however, red blood cell, epithelial, broad, and white blood cell casts may also be found, as Barach's study [7] and this report have shown Unpublished information from other workers [10] confirms the occurrence of red blood cell casts in the urine specimens of football players, as was the case in this study, they were associated with hematuria seen macroscopically and microscopically The evidence presented here indicates that there is a day-to-day carry-over of the sediment abnormalities, e g, the hematuria in the participant group of figure 3 Bodies resembling, but not identical with, oval fat bodies were seen in six specimens, their significance was not apparent

Of the 47 men in this study 28% had one of the illnesses commonly caused by hemolytic streptococci and concurrently submitted a urinary sediment identical to that considered suggestive of acute glomerular nephritis Lacking the evidence presented in this report, a physician examining any one of these men might incorrectly have made that diagnosis It was observed during this study that, after a day of severe exertion, the successive daily urinary sediments from the individual players showed a decreasing number of formed elements until severe exercise again occurred From this observation and the impressions of other workers [11] it can be stated that the desirable program for the athlete with a history or clinical picture of an upper respiratory infection and urinary sediment abnormalities is a one-week period of rest under observation Until this period of time has elapsed, no final decision should be made as to the significance of findings in the urinary sediment A careful appraisal of the clinical picture is necessary before the diagnosis of nephritis can be made If the clinical picture and laboratory tests are negative, and if the urinary abnormalities clear within the week, the diagnosis of "athletic pseudonephritis" is probably justified

In conclusion, it must be remembered that formed elements usually held to be indicative of nephritis may be found in the urinary sediment obtained from an athlete during the season of his active participation in a sport Under such circumstances, however, these elements usually do not indicate serious disease, for their disappearance from the urinary sediment is prompt when the athlete is withdrawn from daily exertion

Summary and Conclusions

A football player was admitted to the student health service of the Hospital of the University of Pennsylvania with a sore throat and gross hematuria His urine was found to contain albumin, red and white blood cells, and hyaline, granular, and red blood cell casts Only when the urinary abnormalities cleared promptly and when no further evidence of acute glomerular nephritis was found was exercise consid-

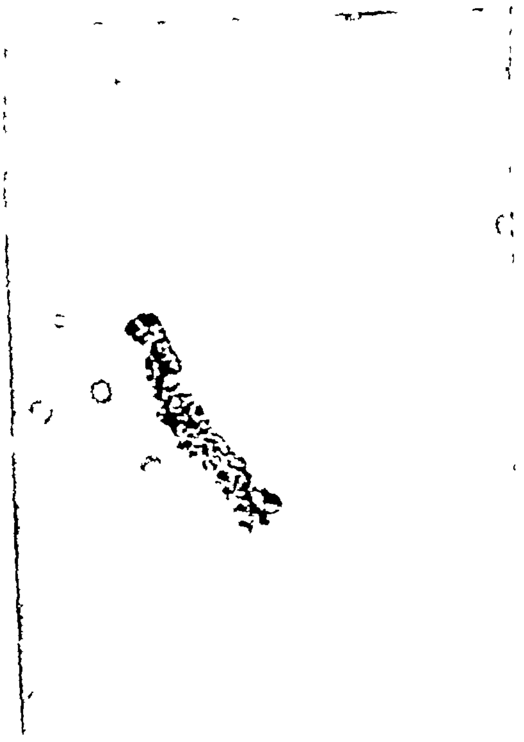

Fig 5 —Reproduction of color slide showing urinary sediment with red blood cell and red blood cell cast of football player two days after appearance of hematuria microscopically (× 120)

ered as a possible cause of the urinary sediment abnormalities His case served to stimulate a review of the literature This revealed that red and white blood cells, protein, and casts of the hyaline, granular, and possibly red blood cell varieties had been seen after exertion in the urine specimens of athletes Subsequently, a study was made of the specimens obtained from 47 varsity football players during a midseason two-week period in November, 1955 The results showed clearly that participation in a heavy scrimmage or game produced changes resembling or identical with the urinary sediment of patients with acute glomerular nephritis in 44% of 424 urine specimens Red blood cell, epithelial, and white blood cell casts were among the abnormalities noted in the sediments It was observed that the specimens tended to clear after a few days of less strenuous activity The name "athletic pseudonephritis" is proposed for this phenomenon, with the hope that the sediment abnormalities that appear in the urine of an athlete during the season of his participation will not lead to the incorrect diagnosis of nephritis in a healthy individual or in candidates for life insurance or induction into the armed forces

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Dr Paul Schrode Director of Student Health of the Hospital of the University of Pennsylvania, Dr Harry Farrell team physician and Steve Sebo coach cooperated in this study

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11 Footnotes 6 7 8 and 9

DOMICILIARY MEDICAL PRACTICE IN AN INDIGENT POPULATION

Richard B Davis, M D
and
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• *The work of city physician in Burlington, Vt , has been taken over by fellows in the College of Medicine of the University of Vermont The fellow on his house calls is accompanied, as the city physician was formerly accompanied, by two or three medical students assigned to this duty in rotation for a period of two weeks during their senior year*

The procedure, described in detail, involved 5,781 home visits in one year Of these, 600 were on Sundays or holidays, and 160 were made between midnight and 8 a m A total of 6,321 cases classified under 243 headings were seen, and valuable data as to the frequency of various types of treatment, the use and misuse of antibiotics, the seasonal distribution of illness, and the occurrence of unnecessary calls were obtained Ear, throat, and respiratory afflictions predominated, and the majority of patients were treated successfully at home

As early as 1860 the town of Burlington, Vt , set aside funds for the remuneration of "town physicians, whose purpose was the home medical care of its indigent population Subsequent to its incorporation as a city in 1865, Burlington (population in 1950, 33,155) continued its program of home medical care by supporting a "city physician" In 1914 this program first was utilized by the College of Medicine of the University of Vermont for teaching purposes, when medical students began to accompany the city physician on his house calls The home care program assumed its present form in 1948, when the fellows in internal medicine of the University of Vermont were given the responsibilities of the city physician as part of their postgraduate training

The city physician not only is responsible for the management of acute illness but also cares systematically for many varieties of long-term illness He works in cooperation with certain ancillary health and rehabilitation agencies, namely the outpatient clinics of the Mary Fletcher Hospital, the Bishop de Goesbriand Hospital, and the city dispensary, the Visiting Nurse Association, the alcoholic rehabilitation commission, the Howard Family Service Center, and the college of medicine's mental health clinic Except for its jurisdiction, the program conforms closely to the principles of home care outlined by Bluestone,[1] and, in the segment of the population seen, encompasses many of the entities for which specialized home care programs previously have been described[2]

At the present time two to three medical students, who are assigned in rotation for a period of two weeks during their senior year, accompany the city physician on his daily house calls During the day, the senior student, under the fellow s direct supervision, is responsible for the diagnosis and treatment of the patient s illness At night a single student makes the calls alone, with the fellow being readily available if his assistance is required for any reason The student thus learns to accept the immediate responsibility for managing illness alone He also acquires a knowledge of the resources and techniques available to the patient and the community for the prevention of disease and

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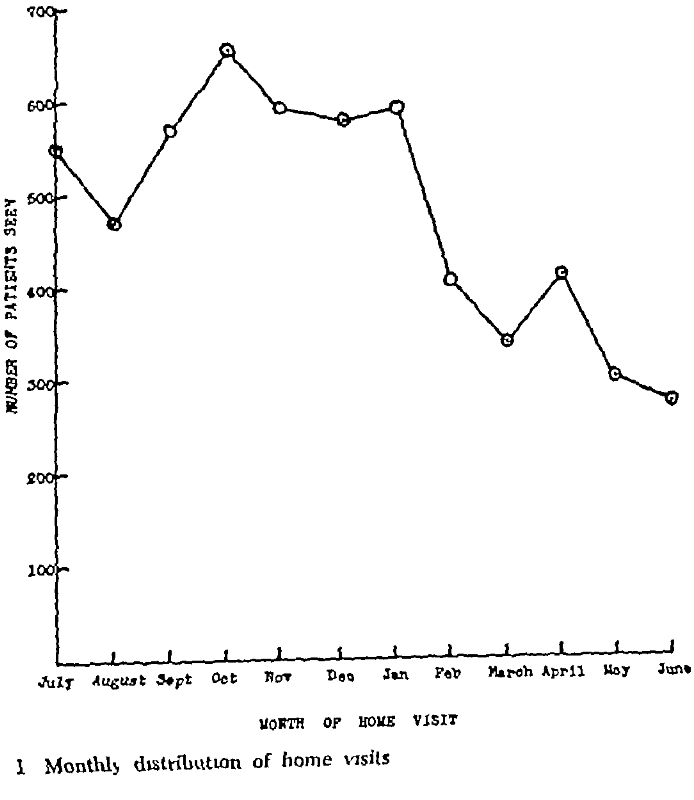
From the Department of Internal Medicine College of Medicine University of Vermont Dr Kresge is now a captain in the U S Air Force and Dr Davis is a fellow in the Division of Internal Medicine University Hospitals University of Minnesota, Minneapolis the maintenance of health, learns to work with the medical and community teams that provide health services, and gains insight into the social and cultural setting in which one segment of medical practice is carried on[3]

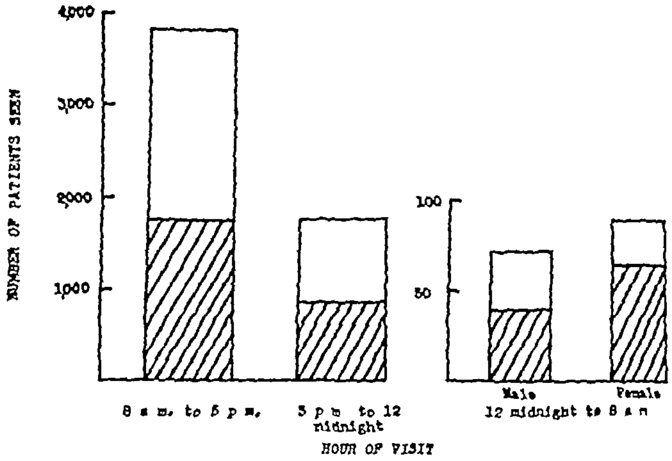
With the objective of defining more clearly the scope of domiciliary medicine and general practice, several studies have been conducted, including those of Pemberton,[4] McGregor,[5] Fry,[6] and Brackett and co-workers[7] in Great Britain and those of Couter, Held, and York[8] and Forbes[9] in the United States Couter's series of 1,000 consecutive residence visits, however, was restricted to private patients, who were more than 13 years old, with conditions restricted "as far as possible" to the field of internal medicine, and Forbes' series was restricted to night calls In the belief that additional cogent information could be obtained concerning the total medical needs of the community and the domiciliary care of patients, in a group unfettered by financial obligation and unrestricted with respect to age or type of disability, a one-year study of the city physician's practice was conducted between July 1, 1954, and June 30, 1955



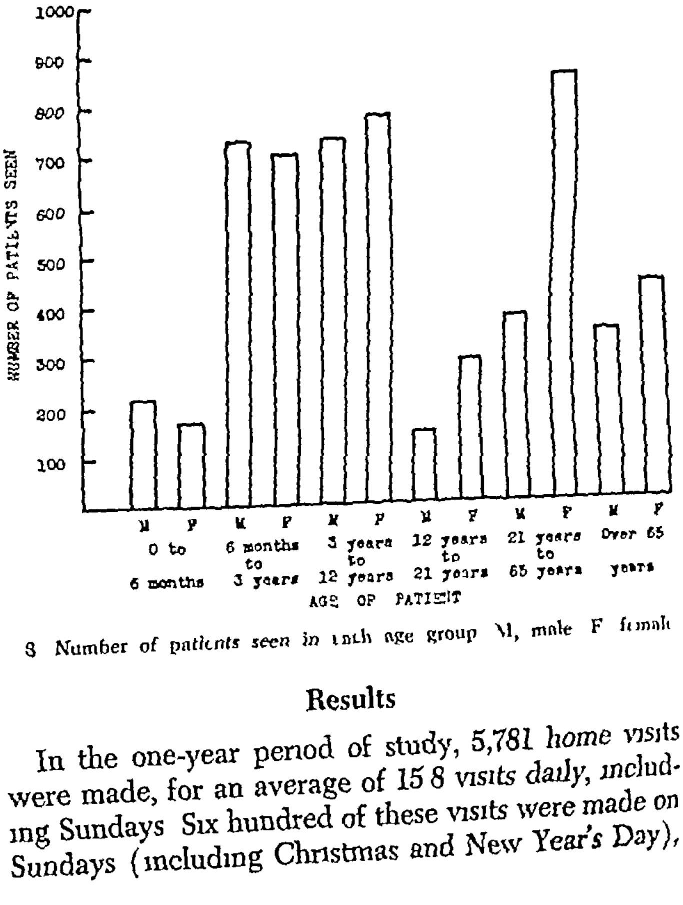
1 Monthly distribution of home visits

Methods

A form card was filled out immediately on making each home visit, recording the patient's name, age, and sex, the date, time, and duration of the call, the diagnostic impression, the treatment used, and the disposition of the illness on follow-up visits An evaluation of the necessity of the call also was made by attempting to answer the question of whether the patient could have been seen in an outpatient clinic without jeopardizing his medical condition, regardless of socioeconomic considerations Calls were received from a central answering service, which the patient called, and thus were not screened In general all routine calls (follow-up and nonurgent visits) were made between 8 a m and 5 p m Calls received after 5 p m were answered as soon as practicable after being received and were reviewed with the student the following morning When any doubt existed concerning the diagnostic impression or treatment, the patient was seen together with the fellow The vast majority of patients were treated with medicaments from the physician's bag, which was carried on all visits Referral, when indicated, was made to one of the outpatient clinics, and, when necessary, hospitalization was carried out All referred or hospitalized patients were carefully followed to ascertain the validity of the initial impression and therapy, and the diagnosis listed in each case was the revised, or final, impression when it differed from the initial impression For the purpose of further clarifying the diagnosis and disposition of the illnesses seen, many follow-up visits were made after July 1, 1955 No charge was made for the visits, with the very occasional exception of visits to nonindigent patients



2 Hourly distribution of home visits Number of necessary visits is indicated by shaded area



3 Number of patients seen in each age group M, male F female

Results

In the one-year period of study, 5,781 home visits were made, for an average of 15 8 visits daily, including Sundays Six hundred of these visits were made on Sundays (including Christmas and New Year's Day),

Table 1.—*Diseases Encountered in 5,781 Home Visits*

Type of Disease	Total No	Disease Entities Seen on Initial Visit		No of Follow Up Visits for Each Entity	Entities Seen Between Midnight and 8 A M	No of Hospital Admissions for Each Entity
Eye ear nose and throat disease	1 481	Acute upper respiratory infection	553 (59)	135	6	0
		Acute otitis media	481 (63)	373	15	2
		Follicular tonsillitis	237 (61)	243	7	2
		Acute pharyngitis	154 (32)	114	10	1
		Otitis externa	17 (1)	2	0	0
		Conjunctivitis	17 (0)	2	0	0
		Chronic otitis media	16 (1)	9	0	0
		Aphthous stomatitis	11 (4)	5	1	0
		Acute spasmotic laryngitis	9 (1)	0	2	3
		Epistaxis	8 (3)	0	0	0
		Acute sinusitis	5 (1)	5	0	1
		Vincent's angina	3 (0)	6	0	0
		Peritonsillar abscess	3 (0)	2	0	0
		Acute laryngitis	2 (0)	0	0	0
		Dacryocystitis	2 (0)	0	0	0
		Oral moniliasis	2 (0)	1	0	0
		Bullous myringitis	2 (0)	0	0	0
		Cellulitis of floor of mouth (Ludwig's angina)	1 (0)	0	0	1
		Laceration of tonsillar pillar	1 (0)	0	0	0
		Carcinoma of larynx	1 (0)	0	0	0
		Post tonsillectomy hemorrhage	1 (0)	0	0	1
		Allergic rhinitis	1 (0)	0	0	0
		Orbital cellulitis	1 (0)	0	0	1
		Blepharitis	1 (0)	0	0	0
		Abrasion of cornea	1 (0)	1	0	0
		Hordeolum	1 (0)	0	0	0
Gastrointestinal disease	835	Gastroenteritis	258 (49)	77	7	2
		Acute cholecystitis	9 (0)	5	1	8
		Chronic cholecystitis	9 (0)	5	0	1
		Pylorospasm	8 (0)	3	0	0
		Acute appendicitis	7 (1)	5	0	7
		Peptic ulcer	5 (0)	4	1	0
		Nonspecific gastritis	5 (0)	2	0	0
		Inguinal hernia	5 (1)	1	0	0
		Diverticulitis	3 (0)	1	0	1
		Hiatus hernia	3 (0)	0	0	0
		Incarcerated inguinal hernia	3 (1)	0	0	8
		Ischiorectal abscess	2 (0)	0	0	1
		Acute infective hepatitis	2 (1)	1	0	2
		Alcoholic gastritis	2 (0)	1	0	0
		Mesenteric lymphadenitis	2 (0)	2	0	0
		Fecal impaction	2 (0)	1	0	0
		Subacute intestinal obstruction secondary to spastic ileus	1 (2)	21	7	6
		Laennec's cirrhosis	1 (0)	2	0	0
		Duodenitis	1 (0)	2	0	0
		Pain secondary to thrombosed hemorrhoid	1 (0)	0	0	0
		Lymphosarcoma of stomach	1 (0)	1	0	1
		Reticulum cell sarcoma of stomach	1 (1)	0	0	1
		Adenocarcinoma of stomach	1 (0)	2	1	0
		Mucoviscidosis (cystic fibrosis)	1 (0)	0	0	0
		Hematemesis (peptic ulcer)	1 (0)	0	1	1
		Subdiaphragmatic abscess	1 (0)	0	0	1
Infectious disease	312	Virus infection of undetermined origin	145 (20)	78	8	0
		Measles	77 (20)	100	2	0
		Chickenpox	19 (1)	11	0	0
		Rubella	17 (0)	16	1	0
		Mumps	16 (1)	9	0	0
		Exanthema subitum	14 (6)	18	1	0
		Herpes simplex	4 (0)	0	0	0
		Infectious mononucleosis	4 (0)	0	0	0
		Late latent syphilis	3 (0)	0	0	0
		Scarlet fever	2 (0)	3	0	0
		Herpes zoster	2 (0)	0	0	0
		Oxyuriasis (enterobiasis)	2 (0)	0	0	0
		Vaccinia	2 (0)	1	0	0
		Rheumatic fever	2 (0)	2	0	1
		Congenital syphilis	1 (0)	0	0	0
		Erysipelas	1 (0)	1	0	0
		Homologous serum jaundice	1 (0)	0	0	0
Respiratory disease	309	Acute bronchitis	131 (25)	88	4	5
		Bacterial pneumonia	96 (28)	190	3	24
		Bronchial asthma	41 (16)	66	9	8
		Chronic bronchitis	15 (0)	5	0	0
		Pulmonary emphysema	11 (2)	4	0	0
		Bronchiectasis	3 (0)	2	0	0
		Pleuritis	3 (2)	2	0	0
		Micrococcic (staphylococcic) pneumonia and empyema	2 (0)	0	0	2

TABLE 1 —*Diseases Encountered in 5,781 Home Visits*—Continued

Type of Disease	Total No	Disease Entities Seen on Initial Visit		No of Follow Up Visits for Each Entity	Entities Seen Between Midnight and 8 A M	No of Hospital Admissions for Each Entity
		Pulmonary tuberculosis	2 (0)	1	0	0
		Acute pulmonary edema	2 (0)	0	2	1
		Primary atypical pneumonia	1 (0)	5	0	0
		Spontaneous pneumothorax	1 (1)	0	0	1
		Lung abscess (Micrococcus)	1 (0)	1	0	1
Skin disease	**284**	Nonspecific allergic dermatitis	52 (6)	13	0	0
		Cellulitis	43 (5)	14	0	1
		Contusion of skin	25 (6)	2	0	0
		Furunculosis	24 (6)	4	2	1
		Impetigo	20 (1)	5	0	0
		Laceration of skin	20 (5)	4	1	0
		Insect bites	18 (2)	5	0	0
		Urticaria	13 (3)	1	1	0
		First or second degree burn	13 (2)	1	0	0
		Rhus dermatitis (poison ivy)	9 (2)	2	0	0
		Diaper rash	8 (0)	0	0	0
		Abscess of skin	6 (0)	1	0	1
		Eczema	6 (0)	0	0	1
		Paronychia	5 (1)	1	0	0
		Nonspecific ulceration	4 (0)	1	0	1
		Varicose ulcer	2 (0)	6	0	0
		Pityriasis rosea	2 (0)	1	0	0
		Intertrigo	2 (0)	1	0	0
		Stasis dermatitis	2 (0)	0	0	0
		Tinea capitis	2 (0)	0	0	0
		Dermatophytosis	2 (0)	0	0	0
		Pediculosis capitis	1 (0)	0	0	0
		Pediculosis corporis	1 (0)	0	0	0
		Mastitis	1 (0)	0	0	0
		Omphalitis	1 (0)	0	0	0
		Angioneurotic edema	1 (0)	0	0	0
		Breast abscess	1 (0)	0	0	1
Neuropsychiatric disease	256	Psychoneurosis				
		anxiety state	105 (14)	61	8	0
		anxiety hysteria	28 (3)	0	6	1
		Acute alcoholic intoxication	43 (5)	10	12	0
		Cerebral vascular accident	20 (8)	55	2	8
		Essential epilepsy				
		grand mal	10 (2)	6	2	2
		petit mal	2 (0)	0	0	0
		Tension headache	11 (2)	3	0	0
		Vascular headache	7 (2)	1	1	0
		Cerebral concussion	5 (0)	0	0	3
		Chronic alcoholic intoxication				
		delirium tremens	3 (2)	1	0	1
		Simple syncope	3 (1)	0	1	0
		Schizophrenic reaction	3 (1)	6	1	2
		Hyperventilation syndrome	3 (2)	0	0	0
		Meningitis				
		Epidemic cerebrospinal (meningococcic)	2 (1)	0	1	2
		pneumococcic	1 (0)	0	0	1
		Post traumatic headache	2 (0)	0	0	0
		Senile dementia	2 (0)	2	2	0
		Reactive depressive state (suicide attempt)	1 (0)	0	0	0
		Radiculitis	1 (0)	0	0	0
		Narcotic addiction	1 (0)	0	0	1
		Insomnia	1 (0)	0	0	0
		Anterior poliomyelitis	1 (0)	0	0	1
		Hypertensive encephalopathy	1 (0)	1	0	0
Musculoskeletal disease	**124**	Traumatic myositis	37 (5)	4	2	1
		Ligamentous strain				
		lumbosacral	16 (2)	0	0	0
		ankle	14 (0)	2	0	0
		knee	2 (0)	0	0	0
		shoulder	2 (0)	1	0	0
		Degenerative joint disease	23 (3)	4	0	0
		Acute bursitis	6 (2)	8	1	0
		Fractured rib	5 (3)	2	0	0
		Fractured hip	3 (1)	0	3	3
		Osteitis deformans	2 (0)	0	0	0
		Herniated nucleus pulposus	2 (1)	0	0	2
		Traumatic coccygodynia	2 (0)	0	0	0
		Fractured ulna	1 (0)	0	0	0
		Fractured metatarsal	1 (0)	0	0	0
		Fractured phalanx (finger)	1 (0)	0	0	0
		Dislocation of shoulder	1 (0)	0	1	0
		Tenosynovitis	1 (0)	3	0	0
		Fractured skull	1 (0)	0	0	1
		Osteoporosis	1 (1)	0	0	0

TABLE 1 —*Diseases Encountered in 5,781 Home Visits*—Continued

Type of Disease	Total No	Disease Entities Seen on Initial Visit		No of Follow Up Visits for Each Entity	Entities Seen Between Midnight and 8 A M.	No of Hospital Admissions for Each Entity
		Costal chondritis	1 (0)	0	0	0
		Polyarthritis of unknown origin	1 (1)	1	1	1
		Rheumatoid arthritis	1 (1)	0	0	0
Genitourinary disease	116	Cystitis	21 (3)	10	0	0
		Intrauterine pregnancy	16 (1)	[illegible]	0	0
		Spontaneous abortion	11 (0)	7	5	5
		Pelvic inflammatory disease	10 (0)	3	1	3
		Dysmenorrhea	8 (2)	3	0	0
		Menorrhagia	7 (0)	3	0	0
		Nausea and vomiting of pregnancy	[illegible] (2)	2	1	0
		Benign prostatic hypertrophy	7 (2)	3	0	0
		Chronic pyelonephritis	6 (1)	5	0	1
		Metrorrhagia	3 (0)	0	3	0
		Carcinoma of uterine cervix	2 (1)	0	0	1
		Carcinoma of prostate	2 (2)	30	0	3
		Paraphimosis	2 (0)	0	0	0
		Intermenstrual pain (Mittelschmerz)	2 (0)	0	0	0
		Nonspecific vaginitis	2 (0)	0	0	0
		Trichomonas vaginitis	1 (0)	0	0	0
		Urinary retention (urethral stricture)	1 (0)	0	0	1
		Urinary retention (atonic bladder)	1 (0)	0	0	1
		Enuresis	1 (0)	0	0	0
		Chronic cervicitis	1 (0)	0	0	0
		Acute glomerulonephritis	1 (0)	0	1	1
		Prostatis	1 (0)	0	0	1
		Ureterolithiasis	1 (0)	0	1	1
		Full term spontaneous delivery (placenta retained)	1 (0)	6	0	1
		Polycystic disease of kidneys	1 (0)	0	0	0
Cardiovascular disease	93	Arteriosclerotic cardiovascular disease				
		with congestive cardiac failure	31 (8)	313	0	7
		without congestive cardiac failure	13 (4)	22	0	0
		Atrial fibrillation	11 (0)	0	0	0
		Essential hypertension	10 (1)	6	0	0
		Angina pectoris	9 (3)	4	1	0
		Hypertensive cardiovascular disease with congestive cardiac failure	6 (1)	74	1	1
		Coronary occlusion	4 (0)	0	0	4
		Orthostatic hypotension	3 (0)	1	0	0
		Rheumatic heart disease				
		without congestive cardiac failure	2 (0)	0	0	0
		with congestive cardiac failure	1 (0)	14	0	1
		Acute bacterial *endocarditis*	1 (0)	1	0	1
		Adams-Stokes syndrome	1 (0)	1	0	2
		Paroxysmal atrial fibrillation	1 (0)	0	0	2
Metabolic disease	27	Diabetes mellitus	13 (0)	[illegible]	0	1
		Obesity	11 (0)	0	0	0
		Diabetic acidosis	2 (0)	0	0	2
		Gouty arthritis	1 (0)	0	0	0
Disease due to physical or chemical agents	16	Poisoning due to inhalation of cooking gas	3 (2)	1	2	0
		Aspiration of kerosene	3 (0)	1	0	1
		Foreign body ingestion	2 (0)	0	1	0
		Lye ingestion	1 (0)	1	0	0
		Ingestion of strychnine	1 (0)	0	1	0
		Scopolamine (hyoscine) poisoning	1 (0)	0	0	0
		Chronic dehydration	1 (0)	0	0	0
		Heat stroke	1 (1)	0	0	1
		Ingestion of oil of cloves	1 (0)	0	0	0
		Heat exhaustion	1 (0)	0	0	0
		Bromide intoxication	1 (0)	0	0	0
Peripheral vascular disease	11	Thormbophlebitis	7 (5)	11	1	3
		Arteriosclerosis obliterans	2 (0)	1	0	0
		Varicosities	1 (0)	0	0	0
		Dissecting aneurysm of aorta	1 (0)	0	0	1
Disease of the ductless glands	2	Hyperthyroidism	1 (0)	0	0	0
		Hypothyroidism	1 (0)	0	0	0
Diseases of blood	2	Pernicious anemia	1 (0)	2	0	0
		Sickle cell trait	1 (0)	0	0	0
Miscellaneous	253	No apparent illness	168 (23)	17	4	0
		Peridontal abscess	19 (2)	16	0	0
		Dental caries	12 (0)	1	0	0
		Penicillin reaction	8 (1)	2	0	0
		Puncture wound				
		foot	6 (1)	1	0	0
		finger	1 (0)	1	0	0
		Dead on arrival	6 (0)	0	3	0

TABLE 1.—*Diseases Encountered in 5,781 Home Visits*—Continued

Type of Disease	Total No.	Disease Entities Seen on Initial Visit		No. of Follow-Up Visits for Each Entity	Entities Seen Between Midnight and 8 A. M.	No. of Hospital Admissions for Each Entity
		Dog bite	5 (0)	0	1	0
		Fever of unknown origin	4 (1)	4	0	1
		Oxytetracycline reaction	2 (0)	0	0	0
		Lymphadenitis	2 (0)	0	0	0
		Ingrown toenail	2 (0)	0	0	0
		Ring stuck on finger	2 (0)	0	0	0
		Foreign body in nose	1 (0)	0	0	0
		Digitalis intoxication	1 (0)	0	0	0
		Lymphosarcoma of arm	1 (0)	0	0	0
		Ventral hernia	1 (0)	0	0	0
		Postoperative (choledochoduodenostomy) care	1 (0)	2	0	0
		Postoperative pain following				
		fingernail excision	1 (0)	0	0	0
		toenail excision	1 (0)	0	0	0
		Pilonidal cyst	1 (0)	0	0	0
		Sulfisoxazole (Gantrisin) reaction	1 (0)	0	0	0
		Laceration of frenum linguae	1 (0)	0	0	0
		Pain secondary to carcinoma of stomach	1 (1)	0	0	0
		Post tooth extraction hemorrhage	1 (0)	0	0	0
		Torn fingernail	1 (0)	0	0	0
		Toothache	1 (0)	0	1	0
		Disseminated lupus erythematosus	1 (0)	0	0	1
		Scleroderma	1 (0)	0	0	1

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* The number of visits on Sundays, Christmas and New Year's Day is indicated in parentheses.

for an average of 11.1 calls each Sunday. A total of 1,890 patients were seen, and 1,684 patients, or 89.1% of the total, were followed up with two or more home visits or by follow-up evaluation after referral to a clinic or after hospitalization. Ten or more visits were made to 82 patients, upon whom a total of 1,379 house calls were made, for an average of 16.8 calls a patient. If those patients with more than 10 calls, and those who had only one visit, are excluded, the average number of visits per patient becomes 2.62, in contrast to the over-all average of 3.06 visits per patient.

The monthly distribution of visits is as recorded in figure 1 and the hourly distribution and necessity of calls in figure 2. Four hundred seventeen visits took 5 minutes or less, 4,151, 10 to 20 minutes, 1,163, 20 to 60 minutes, and 50, one hour or more. The number of visits to patients in each of the chosen age groups is indicated in figure 3, the youngest patient being 8 days of age and the oldest, 101 years old. Since no estimate of the number of patients eligible for care could be obtained, only the absolute morbidity, and not the relative morbidity, could be determined.

A total of 3,440 follow-up calls were made, not including those on hospitalized patients. In 37.0% of patients, the illness was cured, in 31.0%, there was improvement, in 28.6%, there was no change, and, in 3.4%, the condition was worse. Only those follow-up calls that were necessary for the patient's welfare during the year studied are included in table 1, hence they are fewer in number than those indicated above, which include both those visits that were necessary during the year studied and those made after July 1, 1955. On 69 occasions, the final impression differed from the original impression, one third of these changes occurred in patients who originally were felt to have upper respiratory infections but later developed complications. In no instance was there any evidence that any patient's condition was jeopardized when seen by a student alone.

A total of 3,621 cases of 243 separate disease entities were seen. For the sake of completeness, not only the principal diagnosis that prompted the call was entered but each disease entity presented by the patient was included. In entering follow-up visits, however, only the principal illness responsible for the call was entered. One hundred sixty-five hospitalizations were required, and 160 calls were made between midnight and 8 a. m., as indicated in table 1. Although the nature of the notification system precluded availability on an emergency basis, emergency calls occasionally were taken. On six occasions patients were "dead on arrival," each call having been answered within 15 minutes of the time it was received.

Forty-three different drugs were used more than 10 times each (table 2), and 40 miscellaneous drugs, many of which were obtained by prescription and were not urgently required by the patient, were used a total of 122 times (1.5% of the total drug use) and, for the sake of brevity, were excluded from table 2.

Comment

The seasonal distribution of illness (fig. 1) indicates only a trend in monthly morbidity, which in general has been confirmed by the experience of previous years and which shows the maximum number of calls to be made in late fall and early winter, with the smallest number of calls being made in May and June. This distribution also is in accord with Fry's data[6] for 1949 to 1951. The number of calls was greater than anticipated during the summer months, in part due to the many cases of measles seen during July and August, which skewed the monthly distribution.

As was expected, most calls, 66.2% of the total, were made during the working hours of the day, when all patients who were not acutely ill were seen insomuch as was possible. Thirty-one per cent of the calls were between 5 p. m. and midnight, and 2.8% after midnight

In the series of Couter and co-workers,[8] 31.7% were seen from 6 p.m. to midnight and 4.7% after midnight, but, in Fry's series,[6] only 4% of 2,758 house calls occurred between 8 p.m. and 7 a.m.

Most visits (71.8%) were completed within 10 to 20 minutes, 20.1% of calls took from 20 to 60 minutes, and 0.9% of calls took 60 minutes or more. Follow-up calls, in which the patient had largely recovered, or calls for the diagnosis and treatment of minor problems represented 7.2% of the calls and were made in five minutes or less. Although 10 to 20 minutes might seem an excessively short time, it was possible because of the concise nature of most problems, both diagnostically and therapeutically, and frequently was necessitated by the large number of calls, 40 or more, made on some days.

TABLE 2.—*Principal Treatment Used in 5,781 Home Visits**

Specific Treatment	Total No. of Times Treatment Used	No. of Times Treatment Used Between Midnight and 8 A.M.	% of Total Use
Penicillin	1,214	17	14.95
Acetylsalicylic acid	1,168	31	14.37
Sulfisoxazole (Gantrisin)	835	9	10.27
No treatment	716	24	8.81
Supportive treatment	427	7	5.25
Cough syrup	422	6	5.20
Phenobarbital 15 mg. and atropine 0.3 mg.	368	9	4.53
Digitalis leaf	357	1	4.40
Phenobarbital	329	26	4.05
Nose drops	305	6	3.76
Acetazolamide (Diamox)	144	0	1.77
Oxytetracycline	125	0	1.54
Acetophenetidin 150 mg., acetylsalicylic acid 210 mg., and caffeine 30 mg.	120	5	1.48
Alopectose†	105	1	1.29
Phenobarbital 15 mg. and ephedrine 30 mg.	93	5	1.15
Mersalyl (Salyrgan)	90	0	1.11
Reserpine (Serpasil)	85	1	1.04
Tripelennamine (Pyribenzamine)	83	1	1.02
Sulfadiazine	80	3	0.98
Pentobarbital (Nembutal)	79	16	0.97
Ammonium chloride	71	0	0.87
Sulfadiazine, sulfamerazine, sulfamethazine (triple sulfa)	70	3	0.86
Aminophylline (theophylline ethylene diamine)	68	8	0.84
Ear drops	58	0	0.71
Calcium carbonate 600 mg., atropine 0.3 mg., and phenobarbital 30 mg.	56	0	0.69
Diphenhydramine (Benadryl)	55	2	0.68
Glyceryl trinitrate (nitroglycerin)	52	1	0.64
Meperidine (Demerol)	42	12	0.51
Calamine lotion	40	1	0.49
Phenobarbital 30 mg. and theobromine 300 mg.	35	0	0.43
Dimenhydrinate (Dramamine)	34	0	0.42
Epinephrine	33	4	0.41
Hydralazine (Apresoline)	32	0	0.39
Tetracycline	32	0	0.39
Digoxin	21	0	0.26
Multivitamins	20	0	0.24
Chlortetracycline	19	0	0.23
Digitoxin	18	0	0.22
Oxytetracycline ophthalmic ointment	18	0	0.22
Paraldehyde	16	3	0.20
Atropine	16	3	0.20
Nitrofurazone (Furacin) ointment	13	0	0.16
Oxytetracycline ointment	13	0	0.16
Isoproterenol (Isuprel)	12	0	0.15
Morphine sulfate	12	3	0.15

* All drugs used 10 times or more are included.

† Composed of kaolin, colloidal aluminum hydroxide, pectin, and beta lactose.

It has been said[6] that "too much attention is paid to fields of medicine which the future general practitioner is rarely if ever called upon to practice." Without discussing presently accepted medical curriculums, certain conclusions as to the relative importance of age groups and disease entities in domiciliary, urban medical care are strongly suggested.

The patients seen were subdivided, as closely as was feasible, into age groups, the members of which were felt to be susceptible, in common, to certain disease entities. Patients less than 12 years in age required 57.6% of all house calls. The highest (estimated) rate of morbidity occurred in the group between 6 months and 3 years of age. If the calls to single persons numbering 10 or more per individual are considered, the emphasis on pediatric problems is equally as striking, for 52 of the 82 patients requiring more than 10 visits were pediatric patients, with 750 total house calls. The sharp reduction in the number of calls in the group from 12 to 21 years of age, as compared with the nine-year span of the group from 3 to 12 years of age, is evident from figure 3. The adult group, with a span of 44 years, required only 21.4% of the total visits, whereas patients over 65 years of age were seen on 18.5% of all visits, emphasizing the relative importance of geriatric medicine. Many of the visits to patients over 65 years of age were for chronic illness, requiring repeated follow-up care. Of the 783 visits to persons over 65 years of age, 541, or 69.1%, were made to 24 persons who required 10 or more visits, whereas of 1,237 adult-patient visits only 6 patients were seen a total of 10 or more times, with a total of 88 visits, or 7.1% of the total visits in that group. In the series of Backett and co-workers[7] 34.9% of 5,591 home visits were to patients under 14 years of age, whereas 25.6% of the visits were to those over 65 years of age. It should be stressed, however, that a higher proportion of the work of caring for the children and elderly is carried out at home,[7] which influences the over-all importance of these groups in this series.

Female patients constituted 56.0% of all patients seen, compared with 57.5% in Backett's, 55.5% in Fry's and 65.5% in Couter's series. In this series, however, the only significant sex difference was seen in the adolescent years where the female-male ratio was 1.98:1, and the adult years where the ratio was 2.30:1. This sex difference cannot be explained by a preponderance of obstetric or gynecologic conditions, because of the relative paucity of such disease seen on initial or follow-up visits. It is our impression, however, that the vast majority of psychoneurotic states were seen in women, which contributed significantly to the increased number of women seen.

The disease entities seen were dominated by ear, nose, and throat conditions (40.9% of the initial visits and 36.9% of all follow-up work), with the majority of such conditions being in the pediatric age group. Patients with gastroenteritis, "grippe," and psychoneurotic states frequently were seen. Disease of the skin, most of which was of a minor nature, was the fifth largest diagnostic category seen and emphasized the importance of dermatology in domiciliary medicine Although the total number of patients with diseases of the cardiovascular system seen initially was low, cardiovascular follow-up work comprised 17 9% of all follow-up work and chiefly was work with elderly patients The designation "no apparent illness" was applied to 4 6% of all conditions seen on the initial visits, for findings such as physiological variants, pediatric feeding problems, and checkups The night calls (table 1) included a wide variety of conditions, dominated by ear, nose, and throat and neuropsychiatric disease

Although we deplore the indiscriminate use of antibiotics,[10] the single drug used the most was penicillin If acetylsalicylic acid and acetylsalicylic acid, acetophenetidin, and caffeine (APC) tablets are considered together, however, their use exceeded that of penicillin The preponderance of the use of acetylsalicylic acid, phenobarbital, atropine, and supportive therapy was ascribed to the large number of cases of upper respiratory infections, nonspecific gastroenteritis, and "grippe" that were seen No treatment was used 716 times, but many of the patients given no therapy were referred to hospital emergency rooms or clinics Penicillin and sulfisoxazole were used chiefly in the treatment of otitis media and tonsillitis, and broad-spectrum antibiotics were used when indicated The use of antibiotics for colds and grippe specifically was avoided In the 698 cases of these conditions, antibiotics were used in only five patients, four of whom had mitral valvular disease, or congenital heart disease In those 698 cases, 532 patients (76 2%) were listed as recovered and 23 (3 3%) went on to develop complications, principally otitis media, tonsillitis, and bronchopneumonia, which were treated with appropriate therapy One hundred forty-three patients (20 5%) were not followed but can be presumed to have recovered, since no repeat call for care was received The high incidence of recovery, with only symptomatic therapy, even in the presence of poor socioeconomic conditions, serves to emphasize the efficacy of refusing to administer antibiotics to such patients It is of interest that there was a wide diversity of treatment used after midnight, and the most frequently used drugs were acetylsalicylic acid and phenobarbital Narcotics were used on only 15 occasions (9 4%), in contrast to the 40 0% of 200 night calls in which Forbes found morphine to be necessary[9]

The majority of patients were cured or improved on follow-up visits Of those patients whose condition was felt to be unchanged (28 6%), 457 visits were to those in the elderly, chronically ill group, in which repeated follow-up visits were necessary If this group is excluded, then only 15 3% of those patients in whom improvement might have been expected showed no change Hospitalization was necessary once in every 35 0 visits This result compares with 22 7% of the acutely ill patients in Couter's series (one in every 4 4 visits) who needed hospitalization

Finally, mention should be made of the lack of necessity for certain home visits Despite poor socioeconomic conditions, lack of screening of calls, and the psychological impact of presumed illness, it is irrefragably true that some patients did not require medical attention and that many more could easily have been seen at the available clinics This impression is substantiated by a consideration of the diagnostic entities the large number of upper respiratory infections seen, the substantial number of calls for skin disease, and the 168 calls for "no apparent illness " Also, there was surprising uniformity in the determined necessity for house calls, which was 46 0% during the day, 48 5% in the evening, 64 4% at night, and 54 2% on Sundays The problem of the triviality of complaints in England has been mentioned by Stevenson,[11] who says that "Ninety-eight per cent of doctors questioned stated that patients came to them with trivial complaints more often than before the National Health Service," but Roberts[12] notes that "demands upon physicians for trivial complaints, are made only by a few " This problem also exists, however, in "private" practice, for Couter and his co-workers note that 24 9% of their patients "could easily have been seen in the office," and Forbes states that, of his 200 calls at night, "twenty-two were clearly not necessary "

Summary

In analyzing the results of 5,781 home visits made during a one-year period, it was found that over half of the visits were to pediatric patients and that a wide variety of illness was seen, predominated by ear, throat, and respiratory afflictions The majority of patients were treated successfully at home Approximately one-half of the calls were made for patients who did not require a home visit

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CLINICAL NOTES

CALCULUS FORMATION AND URETERAL COLIC FOLLOWING ACETAZOLAMIDE (DIAMOX) THERAPY

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and
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Of the numerous drugs that have been introduced into clinical medicine within the last three years the substance acetazolamide (Diamox)[1] is unique in a number of ways This substance, a heterocyclic sulfonamide, acts as a diuretic because of its property of inhibiting the enzyme carbonic anhydrase By exerting its action in the kidney tubule, acetazolamide blocks rapid equilibration between tubular sodium bicarbonate and intracellular hydrogen ion, preventing acidification of the urine and allowing excretion of sodium bicarbonate together with large quantities of water Due to a yet unknown mechanism,[2] the secretion of aqueous humor is also inhibited by acetazolamide, and the drug has found widespread use in combating glaucoma Reports have been uniformly favorable on the relative mildness of and infrequency of side-effects from the drug, even when administered over long periods of time Urologic complications have been virtually negligible In a series of cases reported by Becker,[3] only one individual was said to have experienced ureteral colic, and an additional report[4] describes the occurrence of ureteral calculus in one individual For this reason, it seemed highly significant to us that we should encounter within a relatively short period of time the following three cases of urinary complications attendant upon the use of acetazolamide

Report of Cases

Case 1 —A 46-year-old man was admitted to University Hospitals on Oct. 10, 1955 with the chief complaint of pain of 24 hours duration in the left flank. The pain was sudden in onset, colicky, and associated with nausea and vomiting, it was relieved by administration of meperidine (Demerol), 100 mg , but recurred in several hours There were no urinary symptoms No gross hematuria was noted The patient had been on therapy with acetazolamide, 250 mg four times a day, for five months because of bilateral glaucoma. On admission, the patient had tenderness of the left flank. The urine contained only a few red blood cells and white blood cells An x-ray of the kidney, ureter and bladder suggested a small stone at the left ureterovesical junction Pyelograms revealed moderate hydronephrosis and hydroureter on the left. Urinary pH ranged from 6 0 to 6 5 The remainder of the laboratory examinations were essentially normal except for an elevated serum chloride level of 113 mEq per liter and a slightly depressed carbon dioxide-combining power of 18 mM per liter At cystoscopy a stone was easily extracted from the left ureter Postoperatively, therapy with acetazolamide was discontinued until increasing intraocular tension necessitated its resumption There has been no recurrence of urinary calculi since the resumption of therapy

Case 2 —A 46-year-old man with essential hypertension and glaucoma was given acetazolamide as an adjunct to treatment of glaucoma from February, 1954 to November, 1955 The dosage varied from 250 to 500 mg daily, except during a one month period in November 1954, when he took 750 mg a day Attention was first attracted to the urinary tract by some ureteral colic on the right in June, 1954 Three faintly opaque shadows were shown to be in the terminal part of the right ureter by urograms Fragments of gray-white powdery stone were caught in a ureteral basket, and the remainder passed spontaneously The material was not analyzed at that time The urine was sterile, the pH was 5 5 and blood chemistry determinations were normal On the assumption that the stone was calcium phosphate, the patient was instructed to increase his fluid intake and to limit his consumption of dairy products sharply He developed ureteral colic on the left in January, 1955 and passed one stone that was found to contain calcium and phosphorus A second stone was removed that month with a looped catheter The urine remained sterile, acid and free of crystals Two white stones were passed without pain or hematuria in the summer of 1955 Qualitative analysis of one of these showed calcium phosphate

Case 3 —A 63-year-old woman entered the hospital with the chief complaint of pain of 24 hours duration in the left flank The pain was colicky in nature, radiated into the left groin and was associated with nausea and vomiting Gross hematuria was noted shortly before admission There was an associated urgency and frequency Urinalysis revealed 10 to 12 red blood cells per high-power field Urinalysis on admission showed an alkaline reaction There was no evidence of acidosis Approximately two weeks prior to admission, the patient had been placed on therapy with acetazolamide, 250 mg four times a day, because of bilateral glaucoma Physical examination revealed marked tenderness of the left flank Excretory urograms showed delayed excretion on the left, with dilatation of the visible portion of the ureter At cystoscopy, although no stone was found, there was marked edema and hemorrhage of the ureteral orifice Repeat urograms after a period of ureteral catheter drainage showed a normal pelviocalyceal system and ureter Presumably the patient had passed a small calculus that was not recovered

Comment

The implied connection between the administration of acetazolamide and the development of the stones described above is of particular interest in the light of the experimental work of Harrison and Harrison[5] These authors describe a marked decrease of citrate excretion in rats treated with acetazolamide and the accompanying deposition of calcium phosphate in renal tubules and pelvis They assume with Shorr and others[6] that urinary citrate aids in maintaining calcium in a soluable complex and that low citrate levels in the presence of normal calcium-phosphorus ratios may be the cause of calcium phosphate precipitation The alternative explanation is that alkalinization of urine by the effect of acetazolamide on renal acid-base balance is responsible for stone formation This appears less likely in view of the fact that measurements on two of our three patients showed excretion of acid urine (pH 6 5 and 5 5)

That the complication seen in these three cases is of rare occurrence is attested to by the failure of its appearance in large series of cases Leopold,[7] however, has similarly seen two cases of calcium phosphate stones in patients receiving this drug With prolonged use of this effective drug, therefore, it may be seen more frequently There are several possible therapeutic adjuvants to prevent this serious side-effect If the role of citric acid is the significant one suggested by Harrison[5] and Shorr,[6] then agents that increase the excretion of citric acid should be used together with acetazolamide There is the additional possibility of

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From the Department of Surgery urologic and ophthalmologic services Western Reserve University School of Medicine and University Hospitals of Cleveland using other complexing agents whose excretion may not be affected by acetazolamide to carry calcium into solution The lack of precipitation of calcium phosphate stones in rats on low-phosphate diets[5] suggests prevention by dietary control In diametric opposition is the classic treatment by urinary acidification Choice between these methods of therapy will have to be made by further observation and experimentation

Summary

Urinary calculi and ureteral colic developed in three patients who were receiving acetazolamide (Diamox) Since alkalinization of urine did not occur, it is possible that suppression of production of citrate, a calcium-complexing substance, was the casual mechanism

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PNEUMATOSIS INVOLVING THE LEFT SIDE OF THE COLON

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Pneumatosis coli has been defined as emphysema of the colon in which intramural pockets of gas are found in the colonic wall and occasionally even in the mesentery Various names have been utilized to describe this condition—pneumatosis cystoides intestinalis, pseudocysts, gas cysts of the intestine, and intestinal emphysema Two forms have been described (1) primary, in which there is diffuse involvement of the colonic wall and mesentery existing without apparent cause, and (2) secondary, in which there are subserous cystic collections of gas usually in association with other disease such as peptic ulcer or carcinoma of the stomach The primary form is rare Most cases seem to be associated with two common factors, namely, ulceration of mucous membranes and obstruction of the alimentary tract Most of the cases in the literature have reported involvement of the small intestine and right side of the colon[1] In a review of 213 cases of pneumatosis cystoides intestinalis from the world literature, only 40 cases of colonic involvement were reported Of these, only 13 affected solely the large intestine and its peritoneal attachments[2] In 1952, one of us (R H M) reported a case with left-sided pneumatosis coli, which probably developed after sigmoidoscopy and biopsy, and it was suggested that this procedure might have been an etiological factor[3] It is the purpose of this paper to present three additional cases of left-sided pneumatosis coli with comments on the relationship to sigmoidoscopy, the roentgen findings, and the follow-up studies of these patients

Report of Cases

Case 1 —A 55-year-old woman, with rectal bleeding of three weeks' duration, was admitted to the hospital for study She had had an appendectomy 25 years previously The remainder of her history was noncontributory On physical examination, she appeared well nourished and presented no significant physical abnormalities except for internal hemorrhoids Sigmoidoscopy disclosed a granular-appearing mucous membrane in the region of the rectosigmoid, and biopsy was done No polyps or further sources of bleeding were encountered When the sigmoidoscope was removed, the patient experienced severe, diffuse abdominal pain The abdomen was moderately tense, with tenderness in the region of the descending colon The sigmoid could be palpated as a doughy mass Barium enema examination revealed findings typical of pneumatosis coli, involving the sigmoid and extending proximally to the distal transverse colon The remainder of the large intestine was normal No free air was demonstrated in the peritoneal cavity (fig 1) The patient's symptoms persisted for a week and then slowly subsided Repeated roentgen studies during the past four years have revealed no change in the colon The patient is well

Case 2 —A 58-year-old male was studied because of a chief complaint of painless hematuria of several days' duration Of significance in his history was a hemorrhoidectomy performed four years previously He had not had a previous roentgenologic examination Physical examination disclosed a well-nourished man in no distress, with no pertinent positive physical findings Routine laboratory work revealed no significant abnormal findings save for fresh red blood cells in the urine Proctoscopy to 7 in was negative No biopsy was performed Four days later, an intravenous pyelogram was taken, and it revealed the presence of a filling defect within the bladder lumen, which proved to be a benign papilloma On these roentgenograms, a grape-like cluster of gas shadows was noted occupying the midabdomen (fig 2A) On subsequent roentgen study, these shadows were situated in the left upper quadrant (fig 2B) and then in the right lower quadrant Barium studies of the stomach and small intestine were normal Barium enema examination demonstrated alterations in the sigmoid characteristic of pneumatosis coli The mesentery of the sigmoid was elongated A second area with less marked changes was seen in the splenic flexure The remainder of the colon was normal (fig 2C) Roentgen studies three months later showed the lesions still present and unchanged

Case 3 —A 52-year old man was admitted to the hospital with the chief complaint of bright-red rectal bleeding Of significance in his history was an appendectomy performed several years previously and a recent barium enema that revealed no abnormalities Physical examination and laboratory data were noncontributory Sigmoidoscopy revealed a polyp at 6 in from the anus, which was removed A subsequent barium enema disclosed pneumatosis coli involving the left side of the colon and extending into the mesentery (fig 3) Follow-up studies six months and two and a half years later revealed no change in the roentgen findings The patient has been well and asymptomatic

Case 4 —A 56-year-old woman, complaining of alternating diarrhea and constipation of nine weeks' duration, entered the hospital for study The history, physical examination, and laboratory data were noncontributory Barium enema revealed pneumatosis coli involving the distal transverse colon and splenic flexure (fig 4) No other definite cause was found for the patient's complaints Clinically her symptoms have remained unchanged

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Etiology

Many theories as to the etiology of pneumatosis coli have been advanced The prevailing concept is that the cysts are, in fact, lymph channels distended by gas The neoplastic theory, in which the gas originates from gas-forming tumor cells, has been discarded The bacterial theory, based on gas-forming organisms invading the colonic wall, producing intestinal emphysema, has not been substantiated In hogs that are fed a diet of polished rice or one deficient in corn, intestinal emphysema can be experimentally produced This work has suggested the concept of a dietary deficiency as an etiological factor in the disease Masson considered this condition to be due to lymph stagnation in tortuous or obstructed lymphatic channels, resulting from local alterations in acid-base balance, with subsequent release of gases into the lymphatics This could be related to the dietary deficiency theory

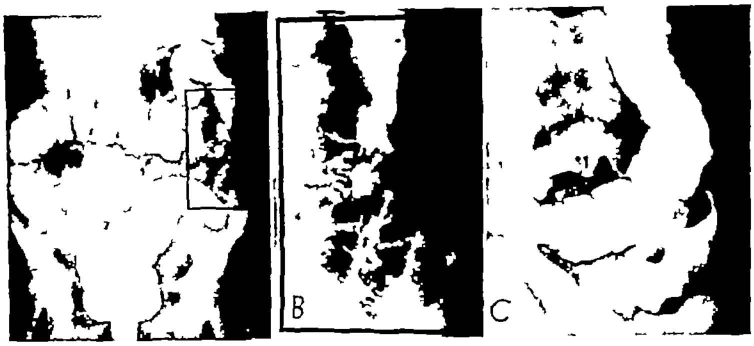

Fig. 1 —Barium enema one day after sigmoidoscopy and biopsy *A* multiple intramural gas pockets along course of distal transverse and descending colon which irregularly compromise the colonic lumen *B* close-up of most marked involvement C oblique projection demonstrating coarse irregular scalloping of luminal contours by gas cysts

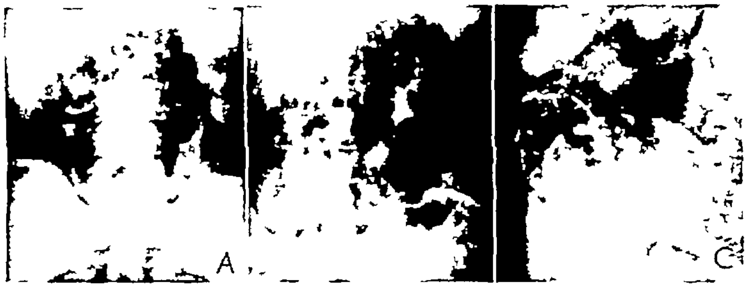

Fig 2 —*A* large grape-like cluster of gas shadows in midportion of abdomen *B* several days later gas shadows are in left upper abdomen *C* barium reveals gas shadows lying in wall of sigmoid mesentery of which is elongated

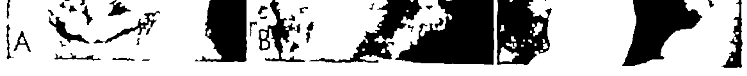

Fig 3 —*A* postevacuation film of barium enema showing pneumatosis involving only sigmoid colon and its mesentery *B* close-up demonstrating gas cysts with alterations in contour and mucous pattern of sigmoid Gas cysts extend into mesentery of sigmoid *C* close up of barium filled sigmoid

The mechanical theory is based on the theory that most of these cases are associated with a mucous membrane defect and obstruction somewhere in the gastrointestinal tract Most cases of pneumatosis cystoides intestinalis involve the small intestine and are usually associated with ulcerative and obstructive disease in the stomach or duodenum It has been suggested that the gas under pressure is forced along the lymphatics into the small intestine and mesentery, thus accounting for the localization distant from its site of origin In cases of pneumatosis involving the ileocecal region, it has been conjectured that there may be an associated lesion in the appendix So-called primary pneumatosis, in which there is no demonstrable cause, usually involves this region

Few cases of left-sided colonic involvement have been described, and there has been little consideration of the possible mechanisms of its production Note has been made of five cases of left-sided pneumatosis coli recently reported in the literature These cases were reviewed to determine the possible role of trauma in the production of pneumatosis In two of these cases, sigmoidoscopy was performed prior to the onset of the pneumatosis, and, in one of these, a biopsy of the mucous membrane was performed[4] In the latter case, barium enema on the day of biopsy revealed no evidence of pneumatosis coli, however, one week later, the lesion was present The patient was operated upon and the diagnosis confirmed In the third case, the disease may have antedated sigmoidoscopic examination,[5] and, in the fourth, sigmoidoscopy was not performed[6] In the fifth case, the onset appeared to be acute after rectal surgery[7]

Three of the four patients described in this report had pneumatosis involving the sigmoid In all three cases sigmoidoscopy was done and in two biopsy These patients were well nourished and had no significant diseases The relationship between sigmoidoscopy and the anatomic site of the pneumatosis is striking Since most cases of pneumatosis involving the small intestine and right side of the colon are considered to be secondary to an ulcerative and obstructive lesion of the stomach, it may follow that the trauma of sigmoidoscopy, with and without biopsy, is responsible for the production of pneumatosis of the left side of the colon The fourth patient had pneumatosis localized to the splenic flexure of the colon There was no known antecedent traumatic episode, sigmoidoscopy, or associated disease The explanation of the location of the pneumatosis in this case is elusive, and it may represent one of the rare instances of primary disease

Pathology

The disease is characterized by the presence of gas-containing cysts in the submucous or subserous layers of the colonic wall When they are subserous, they tend to be more discrete and occur in clusters like a bunch of grapes They may vary considerably in size and be spherical and sausage-shaped The colonic wall is greatly thickened and feels crepitant The lumen may be narrowed by the intramural collections of gas Microscopically, greatly dilated subserous or submucous spaces are seen lined with endothelium On occasion, giant cells are seen, but there is generally no evidence of a severe inflammatory process The mesentery may show similar changes

Roentgen Findings

Because there are no specific clinical or laboratory findings to indicate the presence of a left-sided pneumatosis coli, the most useful diagnostic aid is roentgen study, and, indeed, the disease often is found unexpectedly There have been several discussions of the roentgen findings in the literature[8], however, few cases of left-sided pneumatosis have been described, and, in several of the cases reported, the diagnosis was not made radiographically It seems warranted, therefore, to reevaluate the roentgen criteria for this diagnosis

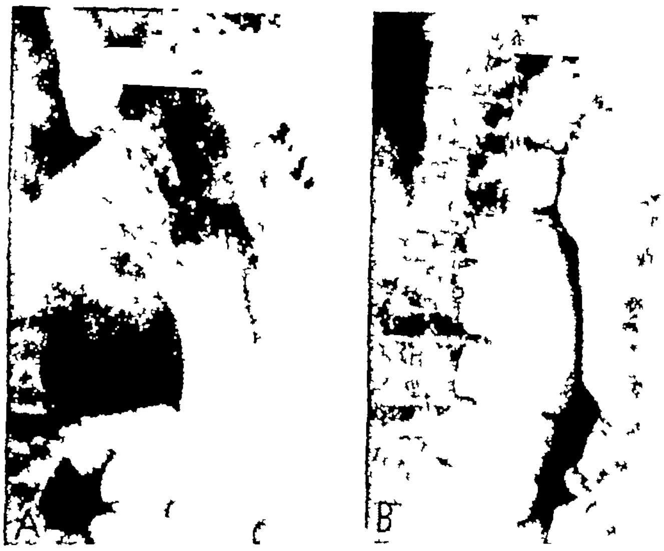

Fig 4 —*A* on gastrointestinal series gas cysts along splenic flexure of colon lateral to gastric fundus are seen *B* intramural gas cysts in splenic flexure of colon confirmed by barium enema study

A preliminary film of the abdomen revealed, in one patient, a grape-like cluster of air shadows that shifted position within the abdominal cavity The nature of these alterations was obscure until a barium enema showed these to be gas cysts along the course of the sigmoid, the mesentery of which was elongated In the three other patients, gas pockets along the course of the descending and sigmoid colon, as well as in the mesentery, were seen, and their true nature could be suspected In none was there evidence of pneumoperitoneum

The alterations are best visualized utilizing barium studies of the colon Discrete lucent areas lie adjacent to the intestinal lumen and indent its contours These defects are variable in size and, when large, may compress the lumen and offer some obstruction to the flow of the contrast material The barium column may then appear as a thin, irregular streak in the middle of the lumen, bounded on either side by air pockets that alter its course and compromise its caliber The colonic segments involved by pneumatosis may not be continuous In one case, the sigmoid and splenic flexure were affected, with a normal intervening colonic segment The changes may extend into the mesentery, radiating out from the colon in a linear fashion Unless the gas cysts are recognized as such, the condition may be confused with polyposis, ulcerative colitis, or carcinoma

Clinical Findings

In left-sided pneumatosis coli, there are no distinguishing complaints or clinical findings The diagnosis must be made by radiographic or surgical means and is generally found in the course of study for unrelated conditions Because of the absence of symptoms in our patients, no treatment has been necessary This is in contrast to pneumatosis elsewhere in the gastrointestinal tract, where the symptoms calling attention to its presence may be caused by complications of the disease, namely, obstruction and perforation In follow-up studies, no changes in the roentgen appearance of the colon from those noted at the initial study were observed The disease has remained stationary

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Dr Harry A Solomon gave permission to report case 2

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EFFECT OF A PHENYLALANINE-RESTRICTED DIET ON PATIENTS WITH PHENYLKETONURIA

CLINICAL OBSERVATIONS IN THREE CASES

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Some interest has been aroused recently in the possibility that patients suffering from phenylketonuria (phenylpyruvic oligophrenia), a condition in which mental deficiency is associated with an inherited abnormality in the metabolism of phenylalanine, may be benefited by giving them a diet deficient in phenylalanine Bickel and others,[1] Armstrong and Tyler,[2] and

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Woolf and others[3] all have reported improvement in the behavior of patients administered a phenylalanine-restricted diet for extended periods of time The major biochemical abnormalities in all the patients studied were found to disappear when the high blood levels of phenylalanine, which are characteristic of the disorder, were reduced to the normal range by the dietary regimen The nature of the mental deficiency is such that it has been difficult to determine whether there has been a significant improvement in mental functioning along with the behavioral improvement This difficulty is readily appreciated in the assessment of the effect of the diet on older patients Observations described in one of the previous reports were suggestive that better success in maintaining good mental development might be dependent upon early diagnosis and treatment before permanent mental damage occurred[2b] It has been suggested by the authors cited and editorially[4] that further studies along these lines are needed

This paper reports the clinical observations made on three phenylketonuric children, ages 4½ years, 4 years, and 8 weeks respectively, in the course of dietary treatment Considerable improvement in the behavior of the two older children has been observed after 10 months of treatment but it has been difficult to obtain objective evidence of improved mental ability The infant, on the other hand, after seven months of treatment, shows no sign of the mental, neurological or physical abnormalities to be expected in a case of phenylketonuria.

Report of Cases

CASE 1 —A 4-year old boy born Dec. 28 1950 was first seen on Jan 20 1955 with the referral complaint of being unable to talk. His history revealed a normal puerperium birth, and neonatal course There was no family history of nervous or mental disease A sibling 2 years of age was in good health This patient s early development was not remarkable He held his head erect when 4 weeks old rolled over when 3 months old and sat alone when 6 months old He did not stand until he was 14 months old but he walked at the age of 16 months and ran at the age of 2 years He did not climb stairs until he was 3 years old. His speech was extremely retarded and he said only a few words at the age of 4 At the age of 2 years the patient was thought to be retarded in his activities. He showed no interest in other children, in playing with toys in feeding himself or in toilet training During the next two years he improved very little and became wild restless and completely uncontrollable in his actions

At the time of the initial examination he weighed 45 lb (20 kg) and was 41 in (104 cm) tall (75th percentile) He was an attractive ruddy-complexioned red-haired male The child displayed tremendous hyperactivity, refusing to sit still and showing only fleeting interest in objects about him His only vocalization was a continual hissing noise. The general physical examination was normal A detailed neurological examination was impossible however, the deep tendon reflexes of the lower extremities were hyperactive The only positive laboratory finding was in the ferric chloride test on the urine which produced the green color characteristic of phenylketonuria The serum phenylalanine level was found to be 38 mg per 100 cc (normal range 2 to 5 mg per 100 cc) Psychologically the patient was regarded as untestable. He was helpless to understand or follow through the simplest problem No effort to control or direct his activities was successful.

Progress While Receiving a Phenylalanine-Restricted Diet — The child was placed on a phenylalanine-free diet Feb 15, 1955 The urinary ferric chloride test became negative after 10 days, and the serum phenylalanine level reached 3 mg per 100 cc after three weeks At this time, protein was added to his diet as described[2b] Since that time, his serum phenylalanine level has been maintained within the normal range His mother reported encouraging progress within a few weeks after the diet was started He began to display an interest in pictures television and in playing with his younger brother He no longer soiled himself and was becoming easier to handle in the household When seen five weeks after the diet was begun he readily permitted examination and showed an interest in the examiner and objects about him Psychologically he was still untestable but showed some insight and interest in the testing procedures In addition he was using several words After four months of dietary treatment he showed considerable purposeful acting and a great increase in vocabulary He remained extremely hyperactive but showed a lively interest in all that went on about him

A significant change was noted after eight months of treatment He was very cooperative in a testing situation With considerable interest he gave a doll a bath arranged play furniture purposefully and named most of the common pieces of household furniture He spoke in conversational sentences and asked simple but correctly constructed sentences For the first time he was readily scoreable at a level of 31 months (age 5 years I Q 52) on the basis of positive achievement The patient is continuing to receive the phenylalanine restricted diet.

CASE 2 —A 4-year-old girl was first seen Nov 1 1954 with a history of convulsive disorder and cerebral palsy " She was born July 13 1950 Puerperium and birth were normal Family history was not significant Her parents and a 2-year-old brother were well The parents dated the onset of her illness to the first year Her development had been slow she rolled over at one year of age sat alone after one year stood alone at 2 years and walked shortly thereafter She did not use single words until she was 4 years old and never had been continent of urine or stool Her only words were mamma " "dada " and bye bye In December 1951 she had several generalized convulsions, with loss of consciousness In April 1952 she was placed on anticonvulsant therapy after an electroencephalogram revealed abnormal focal slow waves with paroxysmal element strongly suggesting prominent epileptogenic lesions in the left temporal region " The seizures were completely controlled on phenobarbital therapy

Physical examination revealed that the girl weighed 32 lb (14 kg) She was a reddish-blond, dull-appearing child, with an open, drooling mouth and a slightly brachycephalic head Her play was boisterous and erratic, and she made many inarticulate squeals and grunts When approached she began to scream kick, and squirm Examination was difficult and non revealing except for dental caries and hyperactive deep tendon reflexes On leaving the examining room she ran wildly and aimlessly up and down the clinic halls Skull x-rays were negative An electroencephalogram revealed right parietal occipital spike waves, but the entire record was one of moderately deep sleep due to heavy chloral hydrate sedation A green color developed when ferric chloride was added to the acidified urine The serum phenylalanine level was 32 mg per 100 cc. Psychological consultation confirmed the diagnosis of a severely retarded child, integrated at the level of 2 to 2½ years, who behaviorally was untestable because her attention span was limited to several seconds on any one stimulus

Progress While Receiving a Phenylalanine-Restricted Diet — A phenylalanine-restricted diet was started March 18 1955 Two and one-half weeks after starting the diet, the patient was much quieter and would sit on a chair and look at a magazine for 10 to 15 minutes at a time Her mother stated she slept better, played better with children, obeyed some commands, and was attempting to copy dishwashing activity Phenylketonuria was not present, and the serum phenylalanine level was 4 mg per 100 cc A repeat electroencephalogram on April 5, 1955 revealed a disappearance of the previously noted spike waves, but, with arousal from sedation, an occasional asymmetric spike wave was seen in the parietal areas primarily on the left. Anticonvulsant therapy was then discontinued On April 9, 1955, 5 gm of food protein was added to the diet. One month after the diet was begun her mother made the following statements "She came in from the outside while playing, took down her pants and went to the pot herself She does not wear me out when we come to the hospital "

When the patient was seen after six weeks of dietary treatment, her behavior was considerably improved In the waiting room, she was content to sit at the play table and play with the peg board She readily permitted examination and seemed interested in the proceedings She used such words as "car," "lights," "kitty," "bottle," "good girl," and "bus" When seen by the psychology department, after 10 weeks of treatment, she performed simple tests and had a scoreable I Q of 50 (mental age, 28 months) Five and six months after the start of the diet, she was imitating more, putting two words together, attempting to dress herself, and in general manifesting more purposeful activity

In November, 1955, she was still somewhat hyperactive, although her attention span was noticeably longer She dressed herself, except for lacing her shoes, and put three words together Psychological testing revealed a mental age of 31 months and an I Q of 49 The serum phenylalanine level was 5 mg per 100 cc She is being maintained on a phenylalanine-restricted diet and will continue to be observed

Case 3 —The infant brother of the patient in case 2 was born Feb 4, 1955 Puerperium and birth were uncomplicated The family history was known Examination at birth revealed a healthy male infant weighing 7 lb 7 oz (3,370 gm) and 20 in (51 cm) in length, with an occipital frontal circumference of 13 in (33 cm) While in the newborn nursery, his urine was tested on two occasions with ferric chloride and yielded negative results When seen at 5½ weeks of age, while receiving an evaporated milk formula, he weighed 10 lb 5 5 oz (4,694 gm) and his length was 22 in (56 cm) Ferric chloride, when added to the acidified urine, gave a questionable, transient green color On March 29, 1955, when the infant was 7 weeks and 4 days old, physical examination was normal, however, when ferric chloride was added to his urine, a definite green color developed The serum phenylalanine level was 55 mg per 100 cc Psychological estimates and neurological examinations were entirely within the normal range An electroencephalogram was within normal limits for his age, with a dominant frequency of 3 to 5 per second A phenylalanine-restricted diet was started April 4, 1955, when the patient was 2 months of age

Progress While Receiving a Phenylalanine-Restricted Diet.—After three days, the serum phenylalanine level was decreased to 22 mg per 100 cc, and, after 18 days, it was reduced to 4 mg per 100 cc Three weeks after the diet was started, normal protein in the form of 70 ml of cow's milk was added each day At the age of 3 months, he weighed 15 lb 9 oz (5,471 gm) and his length was 25 5 in (63 cm) He reached for objects, grasped them, and put them in his mouth He rolled over both ways and was getting up on his hands and knees Physical examination again revealed a sociable, happy, healthy infant By 6 months of age, he had two teeth, was alert, responsive, sat alone, pivoted in the prone position, held two cubes, secured a ring by the string, laughed, produced single-syllable sounds, and held his feeding bottle Physical examination was unremarkable, with weight 17 lb 1 5 oz (7,760 gm) and length 26 in (66 cm) At 9 months of age the patient was able to pull himself up in the crib and walk with hands supported He is continuing to develop at the upper normal levels in all areas for his age He is being maintained on the phenylalanine-restricted diet, which is being supplemented with 2 0 to 2 5 gm of natural protein daily The serum phenylalanine levels have remained at 4 mg per 100 cc or less on each determination His mother states his development compares with that of his unaffected older brother rather than his affected older sister

Comment

The observations made on the two older patients are in general agreement with those reported earlier by Armstrong and Tyler[2a] Both children displayed a rather striking improvement in behavior, but here, as in cases reported earlier,[2b] an objective measurement of a relative improvement in mental ability—as differentiated from the behavioral changes—was difficult to assess While on the diet, both children became psychologically testable Whether or not definite mental improvement had occurred, a very tangible result was an improvement in the total family situations, an event that gave both sets of parents considerable satisfaction The infant in whose case diagnosis was made and a phenylalanine-restricted diet given before the appearance of any clinical signs of abnormality has continued to develop in an apparently normal fashion The early diagnosis and treatment in this case were possible because of the known family history

Summary

Three patients with phenylketonuria were treated with phenylalanine-restricted diets The serum phenylalanine levels were lowered to and maintained near the normal range The two preschool children have been treated for 10 and 9 months respectively These children are showing objective improvement in behavior and have become psychologically testable The electroencephalogram was normal in one child and abnormal in the other, the electroencephalogram of the latter child returned to normal after the dietary program was instituted A newborn sibling of one of these children has been followed since birth and was placed on a dietary regimen when the urinary ferric chloride test became positive when the child was 8 weeks of age The infant shows normal motor and mental development, and no signs of abnormality have been detected

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Merck & Co Inc, Rahway N J furnished the phenylalanine-free basal mix used throughout these studies

Marvin D Armstrong Ph D Laboratory for the Study of Hereditary and Metabolic Disorders, University of Utah College of Medicine Salt Lake City collaborated in this study by assisting in the preparation of diets and by performing the analytical determinations on blood and urine from the patients This research was supported, in part through a research grant from the United States Public Health Service

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UNUSUAL HEMOLYTIC TRANSFUSION REACTION WITH RENAL FAILURE TREATED BY HEMODIALYSIS

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John E Doyle, M D
Ernest Witebsky, M D
and
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During the past 10 years various techniques of blood dialysis have been studied and used in many of the larger medical centers in this country[1] The results of these trials have been extensively reported by many

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From the University of Buffalo School of Medicine (Dr MacNeill) and the departments of medicine (Drs Doyle and Swanson) and immunology (Dr Witebsky), Buffalo General Hospital

authors, and some very large series of treatments in man have been assembled. Reports from abroad, including the original clinical work of Kolff[2] and the studies of Alwall,[3] have been of great interest. In most cases the equipment necessary has been large, heavy, and expensive, and its lack of portability has required that the patient be moved to a medical center large enough to maintain such a treatment service. Increasing experience with such techniques seems to indicate that they are of value in a number of clinical situations other than renal failure,[4] for which use they were first popularized.

In 1942, one of us (A. E. M.) designed several styles of blood oxygenators, based on the use of membrane for bounding the blood and allowing the transfer, by diffusion, of respiratory gases to and from the blood in the manner of the gills of a fish. This designing was done in a military environment, and thus the need for portability and compactness in such equipment was stressed. It was also apparent that a very large membrane surface must be provided in such an apparatus because of the relatively small transfer of gases across the available membranes. This consideration placed emphasis on very compact arrangements for the use of such a membrane interface, not only so that the total size of the apparatus might be within reason, but also for the purpose of minimizing the amount of blood required to fill the blood pathways.

In 1948, one of these designs was revived as a tool in a study of laboratory dialysis. A unit of the original design containing 1 sq. m. of cellophane surface (approximately 1/10 of the original surface area contemplated for use as an oxygenator) was built and exhibited at two scientific exhibits in 1949. A modification of this model containing metering channels of Teflon (a tetrafluoroethylene resin preparation) suitable for use with blood was exhibited in 1953.[5]

The reported successes of the blood dialyzer technique elsewhere were an encouragement to the continued development of this very compact blood dialyzer.[5] Its portability and small blood-volume requirement seemed to open the way to an extension of the blood dialyzer technique into a wide range of investigative situations. Since September, 1953, this project has been supported adequately enough to allow the construction of apparatus suitable for trials in man.[6] Trials of this equipment with animals were successful in the early months of 1954, the compact blood dialyzer seen in figure 1A was thus available for clinical use at a time when the clinical situation described in the following case report was presented.

Report of a Case

A 41-year-old woman was first admitted to a small community hospital for a cesarean section in 1947. Fifteen months later she was admitted for the second time for anemia. Except for pallor, her physical examination revealed no abnormalities. Blood examination showed a hemoglobin level 58% of normal (8 gm. per 100 cc.). Urinalysis revealed occasional leukocytes and squamous cells but no other abnormalities. A transfusion of 500 cc. of blood was given, following which the patient's oral temperature rose from 98 F (36.6 C) to 99 F (37.2 C) and the pulse rate from 72 to 96 per minute. The patient, however, felt no discomfort at any time and was discharged the same day. She was admitted for the third time to the same hospital during the next year because of the extraction of teeth and secondary anemia. She was discharged one day after admission. Her fourth admission to the same hospital was approximately two years later at the age of 44. The diagnosis of secondary anemia was again recorded. She was very pale and felt tired and weak. A transfusion of 500 cc. of whole blood was given. Within 30 minutes of the completion of the transfusion the patient experienced a chill which lasted 30 minutes and was accompanied by a severe headache. External heat was applied. During this period of discomfort her oral temperature rose from 98.6 F (37 C) to 100.6 F (38.1 C) and her pulse rate from 76 to 88. A dull headache persisted the next morning. Laboratory work done prior to the transfusion showed the urine to be normal, an erythrocyte count of 4,030,000 per cubic millimeter, and a hemoglobin level of 10.6 gm. per 100 cc. Her blood type was group A, Rh positive.

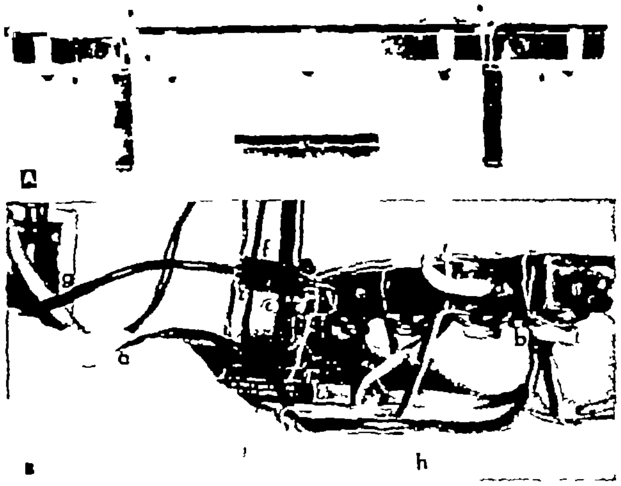

Fig. 1.—A, MacNeill Mark XIb blood dialyzer. B, dialyzer as used in patient with acute renal failure: a, radial artery cannula; b, blood entrance port of dialyzer; c, dialyzer; d, washing-fluid entrance of dialyzer; e, blood channel from dialyzer to the flow meter; f, blood flow meter; g, blood line returning to the cephalic vein cannula; h, bedside table. The washing fluid reservoir is on the floor.

Almost three years later the patient, now 47 years old, was admitted for the fifth time to the same hospital. A diagnosis of cholelithiasis and chronic cholecystitis had been made, and a cholecystectomy was scheduled. The patient received an organic iodine dye compound by mouth on the night of admission, as a gallbladder roentgenogram study was to be made the following morning. When she returned from the x-ray department, a transfusion of 500 cc. of whole blood was started. This was infused in about 90 minutes. Another 500 cc. of whole blood was used. One-half hour later the patient began to have a chill, hot water bottles gave some comfort. The transfusion was completed within two hours. One hour later the patient still had chills, requiring the use of extra blankets. Her oral temperature had now risen from a level of 98 F, before the transfusion, to 100 F (37.7 C).

The patient felt better in the evening of that day, but it was noted that she passed red urine the following morning. The laboratory report stated the urine to be reddish in color and slightly turbid, acid in reaction, negative for sugar, and with a slight trace of albumin, a specific gravity of 1.010, and a sediment of 1 to 3 epithelial cells and amorphous debris. Blood studies done the same day revealed an erythrocyte count of 4,400,000 and a hemoglobin level of 13.9 gm. per 100 cc. The patient spent a comfortable day. Her gallbladder was removed the following morning She received another 500 cc of whole blood during this operation Her oral temperature before surgery was 98 2 F (36 7 C) Five hours after surgery, it was 98 8 F (37 1 C) At this time, 9 oz (266 cc) of "blood-stained" urine was collected by catheter In the laboratory it was described as reddish in color and slightly turbid, acid in reaction, negative for sugar and albumin, and with a specific gravity of 1 010, leukocytes were rare and the sediment contained few epithelial cells and amorphous urates and debris Eight hours after surgery the patient's oral temperature was 102 F (38 8 C), 3 oz (89 cc) of urine was excreted A nasogastric tube was inserted to relieve abdominal distention A new indwelling urinary bladder catheter was inserted on the morning after surgery, and 1 oz (30 cc) of black urine was obtained The laboratory examination of the black urine revealed an alkaline reaction, 2–6 white blood cells per high-power field, 5–10 red blood cells per high-power field, and occasional cells, a test for bile was positive, and amorphous phosphates were present

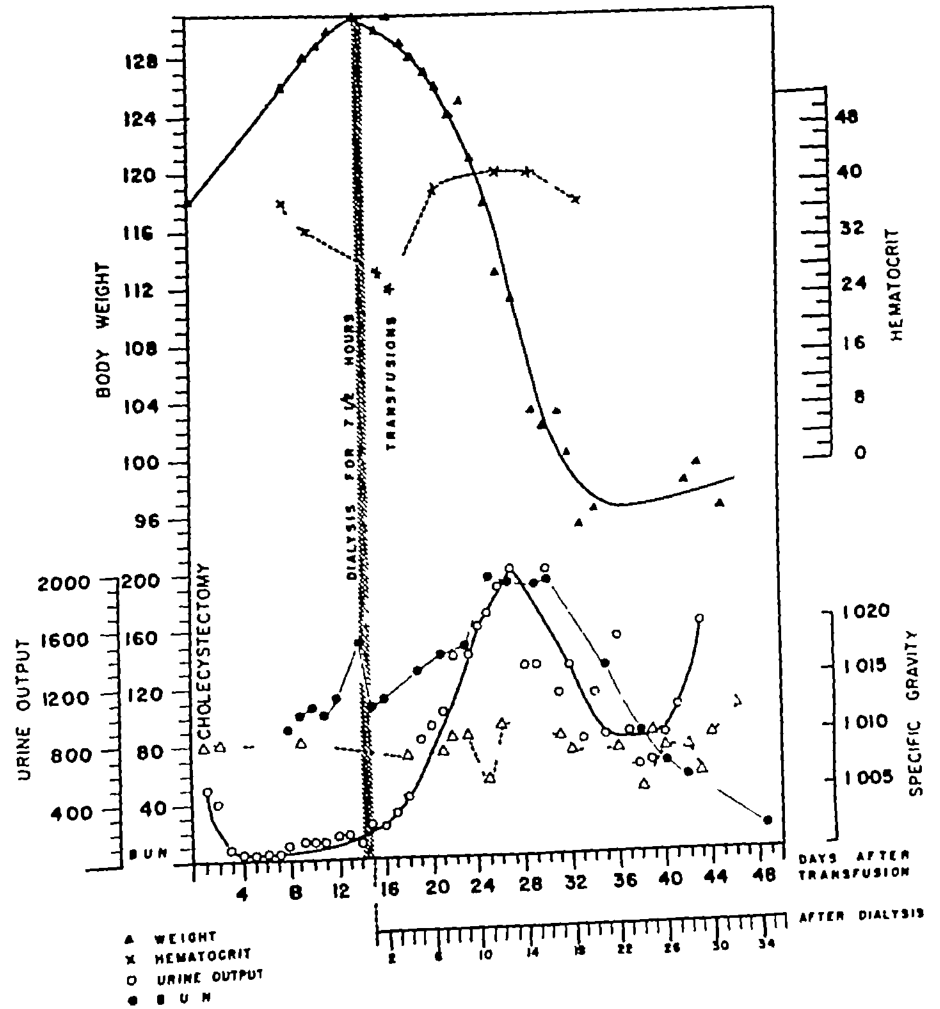

Fig 2 –Laboratory findings during acute illness and convalescence of patient with renal failure

In the next few days she could retain nothing by mouth In the first four days after operation, her urinary output totaled only 101 cc Her nonprotein nitrogen level rose from 55 mg to 75 mg per 100 cc , while the serum sodium level was 133 mEq per liter, the potassium level was 5 14 mEq per liter, and the carbon dioxide content was 45 vol % She was transferred to our hospital for hemodialysis

Serologic Data—There was some question as to whether the patient's kidney failure was due to the sequelae of surgical intervention or to a hemolytic transfusion reaction For that reason, a detailed serologic analysis was carried out The patient was found to belong to blood group A, Rh positive, subtype Rh_1 There was some doubt as to whether she was homozygous or heterozygous in Rh_1 A slight reaction obtained with anti-c serum was attributed to transfusions she had received previously and to that mixture of heterozygous cells with her own homozygous Rh_1 cells The patient's cells proved to be Kell-negative and Duffy-negative Tests were then carried out with known Kell-positive cells, and it was found that the patient's serum agglutinated the Kell-positive cells, but that the agglutinin in the patient's serum had no relation with the Duffy factor

The patient's serum was tested against a panel of 48 test cells, 4 of which were agglutinated The factor responsible for the agglutination of those four test cells could be identified with the Kell factor, which is present in about 7 to 10% of the white American population Quantitative titration demonstrated the Kell antibody present in the patient's serum to be strong There was a saline agglutinin up to a titer of 1 8 and an incomplete antibody up to a titer of 1 256 when undiluted normal human serum was used as a diluent The use of serum albumin as diluent decreased rather than increased the strength of the Kell antibody titer, confirming a previous report by Dr Grove-Rasmussen[7] Actually there are only a few Kell serums reported in the literature that contain an antibody that can be demonstrated by direct agglutination technique in a test tube, even when saline solution is used as a diluent The conclusion was therefore reached that the patient's kidney failure was due to a hemolytic transfusion reaction The Kell-negative patient apparently was sensitized to the Kell factor by the transfusion of the Kell-positive blood during her previous hospital admissions, which stimulated the production of Kell antibodies A transfusion given at her last admission apparently was of blood that was also Kell-positive, causing the transfusion reaction For further blood transfusions only Kell-negative blood was selected, and no reactions were observed

Results of Dialysis—The patient's condition was observed for one week prior to the dialysis During this time her condition deteriorated rapidly, remaining anuric and becoming more acidotic Despite careful restriction of fluid, caloric intake of at least 100 gm of carbohydrates daily, and the use of potassium-absorbing cation exchange resin rectally, she lapsed into a state of severe acidosis with hyperkalemia and coma It was agreed that the patient was moribund At this point she underwent hemodialysis for a period of seven and one-half hours The dialyzer as operated in this treatment is shown in figure 1B Before the blood was allowed to enter, the apparatus was filled with sodium chloride solution containing 50 mg of heparin The patient received 100 mg of heparin initially and an average of 10 mg per hour during the dialysis The clotting time was checked frequently and was 90 minutes during most of the dialysis

The clinical response of the patient during dialysis was very gratifying She became conscious after seven hours and answered questions hazily Within five hours after dialysis, she was alert and cooperative Blood chemistry values before and after dialysis are given in the table

Although she was voiding up to 1,600 cc of urine per day one week after dialysis, her ability to pass concentrated urine lagged behind the volume output She steadily improved, despite a difficult diuretic phase, and became ambulatory and asymptomatic She was discharged from the hospital one month after dialysis, at which time she was eating a full high-calorie diet One week after discharge from the hospital, the blood urea nitrogen level was 21 mg per 100 cc Some laboratory findings during the patient's acute illness and convalescence are charted in figure 2

Urinalysis at this time revealed the urine to be straw-colored cloudy and acid in reaction and with a specific gravity of 1 012 rare epithelial cells, and a trace of albumin The specimen was negative for sugar and for bile Five months after dialysis the phenolsulfonthalein test showed 37% excretion in one hour Fifteen months after the dialysis the patient was feeling well and had gained weight and there was no albumin in the urine which was a concentrate of 1 022

Comment

The MacNeill Mark XIb blood dialyzer was first used clinically in this case A description of this dialyzer has been published elsewhere[6] Since the time of the dialysis reported herein, the procedure has been used in 35 additional patients A review of this series is now being prepared for publication The blood dialyzer should be viewed as a basic communication device quite comparable to the capillary bed in the body The term 'artificial kidney" reflects wishful thinking, the dialyzer in a sense replaces the excretory function of the kidney and regulates electrolytes in the plasma It cannot perform metabolic functions, which are so important a part of the work of the kidney If the dialyzer is looked upon as a basic therapeutic tool, wider use of it can be made In this instance, the use of dialysis was considered to be a life-saving measure Statistical evaluation of hemodialysis in acute renal failure must await the accumulation of wide clinical experience

Blood Chemistry Values

	Before Dialysis	After Dialysis
Urea nitrogen	146 mg per 100 cc	98 mg per 100 cc.
Calcium	9 mEq per liter	10 mg per 100 cc
Sodium	104 mEq per liter	124 mEq per liter
Potassium	8 0 mEq per liter	4 5 mEq per liter
Chlorides	77 mEq per liter	92 mEq per liter
Inorganic phosphorus	14 mg per 100 cc	8 3 mg per 100 cc
Bicarbonate	5 2 mEq per liter	9 0 mEq per liter

The unusual finding of Kell factor sensitization with subsequent transfusion reaction from the administration of Kell-positive blood excited a great deal of general interest in this patient. The reversibility of the pathological lesions following adjustment of the blood chemical levels by dialysis was striking particularly in view of the very precarious clinical state prior to dialysis

Summary

A new blood dialyzer was successfully used in a patient having acute renal failure following a hemolytic transfusion reaction This hemolytic crisis was of particular interest in relation to two unusual aspects (1) a transfusion reaction occurring in a patient sensitized to Kell-positive cells, which appear in only 7 to 10% of the white American population, and (2) the successful use of a new blood dialyzer on this patient.

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SPECIAL ARTICLE

LOW-PROTEIN DIETS FOR REDUCING

Norman Jolliffe, M D, New York

The publication in mass-circulation journals of reducing diets low in protein, one containing 30-40 gm from normal foods[1] and the other a liquid formula diet containing even less,[2] has created many inquiries concerning their safety and effectiveness Discussion of both diets on radio and television programs and promotion of the liquid formula diet over a national hookup by television commercials and newspaper advertisements by the promoters of a syrup rich in dextrose and of corn oil have stimulated further inquiries Runs on drugstores for dextrose became so large as to be reported in the business section of a news weekly[3]

The low-protein diet, through normal foods,[1] limits protein, it may be calculated, to 30 to 40 gm daily, but (calories from) carbohydrate and fat are unrestricted in amount or type, so it is impossible to estimate the approximate nutritive composition of this diet. Although most of the menus in the popular version were not used in the hospital of origin,[4] this diet is based upon one used by Dole and co-workers,[5] who demonstrated in their hospital routine that limiting the protein intake of their obese subjects to 30 to 40 gm daily resulted in a decrease in appetite and a resulting loss of weight Serial liver function studies on 4 of their 42 subjects were unchanged, but nitrogen balance, blood lipid, hematological, or renal studies were not reported in this communication, although it was noted that the general health remained good "

The liquid formula diet as published in the lay journal[2] consists of dextrose, corn oil, evaporated milk, and water These are to be blended together and divided into six equal feedings, which supplies "approximately 900 calories each day" As calculated from standard food tables, and assigning 10 gm as the weight of a tablespoon of dextrose, the diet has the

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following composition: protein, 21 gm.; fat, 53.7 gm.; carbohydrate, 89.7 gm.; and energy, 925 calories. By reducing the amount of the formula to 600 calories, as recommended when 900 calories fails to produce satisfactory weight losses, it would contain but 14 gm. of protein, and all other nutrients would be proportionately decreased.

The article,[2] probably to emphasize the safety of the liquid diet formula, notes: "The formula is a complete food mixture." "The formula is a mixture which closely approximates the proportions of protein, fat and carbohydrate in human breast milk." "The formula has been tested with obese people who are otherwise in good health." This article warns: "The formula has not been tested as a reducing diet for children, or as a method of feeding in pregnancy or in instances of impaired health where larger amounts of protein would be indicated." The article also warns dieters to take a multiple vitamin capsule daily and suggests the possibility of a noncaloric bulk mixture for laxation. The article does not warn of any hazards of a low-protein diet for normal people, or that the diet does not constitute a basis for dietary reeducation, or that it is woefully inadequate in iron. It does, however, attempt to transfer responsibility from the publisher to the reader and doctor by the following statement: "As with any reducing diet, it is important that you check first with your doctor and have his approval before you begin."

Concerning the longer range effectiveness of the liquid formula diet, the article noted that the test of any diet is whether the dieter can maintain the reduced weight. "Some patients went over their maintenance-calorie allowance, regained some weight. Others held their own." The publication[6] originally reporting this formula made no mention of the experimenters' results in treating obesity, but Dole[4] recently noted that "while both diets," referring to their liquid formula diet and their low-protein diets through normal food, "caused temporary weight loss the majority of the patients quit the diet after leaving the hospital and returned to their starting weight." It does not seem that the lay journal's[2] representation "some patients regained some weight" is an adequate description of the longer range results of the liquid formula diet.

Both of these diets have additional defects as to practicability, safety, and effectiveness, but further discussion at this time will be limited to their adequacy in protein. An adequate protein intake is so basic for health and protein deficiency so adversely influences every structure and function of the body that it is axiomatic that every reducing diet should contain sufficient protein to guard against any deleterious effects of impaired protein nutrition. Opinion may and does change from time to time as to the proper "safety level" or "allowances" for protein. One has only to recall the 118 gm. recommended by Voit[7] in 1881, the 40 to 57 gm. recommended by Chittenden[8] in 1904, and the 1 gm. per kilogram of normal body weight recommended today. On the other hand, the minimum protein requirement, when defined as that amount that will just maintain nitrogen balance plus a small allowance (1 gm. of nitrogen) for losses in perspiration and maintenance of the skin, hair, and nails, should remain the same. The literature affords no evidence to the contrary.

The minimum protein requirement, as determined either by endogenous excretion of nitrogen in the urine of patients on protein-free diets adequate in calories or by balance studies that determine the minimum nitrogen intake that will just equal its excretion in the stools and urine, is remarkably uniform for animals ranging in size from mice to the cow, including man.[9] This amount is about 2 mg. of nitrogen per calorie of basal heat. Transferring this to normal 60 and 70 kg. (132 and 154 lb.) persons with basal heat productions of 1,300 and 1,650 calories, respectively, amounts to 2.6 to 3.3 gm. of nitrogen equivalent to 16.25 to 20.6 gm. of protein. This amount of protein, however, must be corrected for both digestibility and biological value.[9b] Mixed diets have a digestibility of about 90% and a biological value of about 80. Applying these factors brings the experimentally determined minimum protein intake for nitrogen balance to 22.5 and 28.6 gm. of protein for 60 and 70 kg. persons. These latter values do not include the 1 gm. of nitrogen lost in perspiration or in shedding epithelial structures. Adding this 1 gm. of nitrogen brings the minimum daily protein requirement of a normal person receiving adequate calories up to 28.75 and 34.85 gm. for 60 and 70 kg. persons. Thus a minimum of 0.5 gm. of mixed protein per kilogram of normal body weight is an accurate simplification of the minimum protein requirement, but one that allows for no variability in digestibility or in biological value, or for a calorie deficit.

The 21 gm. of protein in the liquid formula diet[2] is entirely of milk, and it may have some value not present in mixed proteins. Assigning to the milk protein in this diet a digestibility of 100% and a biological value of 74, it can then be calculated that the minimum amount required for nitrogen balance with adequate calories would be 22.0 and 27.7 gm. for 60 and 70 kg. persons respectively. These calculated figures are remarkably similar to those experimentally determined by Bricker, Mitchell, and Kinsman,[10] who found that the 60 kg. woman, when in calorie balance, required 22.4 gm. of milk protein for nitrogen balance. That the calculated and the experimentally determined requirements for proteins other than milk are also remarkably similar has been demonstrated by Hegsted, Tsongas, Abbott, and Stare.[11]

It is clear, therefore, that nonobese people in caloric balance would be unable to maintain nitrogen balance on 14 or 21 gm. of milk protein, and that 30 to 40 gm. of mixed proteins with adequate calories would be of borderline adequacy. If, however, people of normal weight are maintained on diets inadequate in calories, then larger amounts of protein would be required for nitrogen balance. This has been repeatedly demonstrated, but the last and most extensive studies have been reported by Keys and co-workers.[12] Normal young men were placed on a diet averaging about 1,600 calories and 50 gm. of protein daily. After 12 weeks their nitrogen deficit averaged 2 gm. daily, representing the nitrogen in about 466 gm. of protein tissue per week. After they had been on this diet for 23 weeks, their nitrogen excretion averaged 1 gm. daily. It is clear, then, that, if nonobese people use either the liquid formula diet or the low-protein diet through normal foods to reduce, they will do so at the expense of a nitrogen deficit and its consequences.

Obese people, however, resist protein deprivation to a greater degree than do people of normal weight It is thus necessary to examine the evidence that calorie-deficient diets containing 14 to 21 gm of milk protein and 30 to 40 gm of mixed protein will maintain nitrogen balance in obese people Dole and co-workers[5] interpret the work of Chittenden,[8] Hindhede,[13] Streick,[14] Strang, McClugage, and Evans,[15] Keeton and Dickson,[16] and Moller[17] as supporting the safety of 30 to 40 gm of protein Chittenden s diet[8] was 40 to 57 gm of mixed proteins in a diet adequate in calories, which in my opinion is not 'very similar to the one used in this study' Hindhede[13] presented no intelligible data on nitrogen balance Streick[14] presented data on one person who at the age of 70 had lived for 15 years on a calorically adequate diet averaging 38 to 40 gm of protein The minimum protein requirement of this subject for nitrogen balance was 28 gm of protein, and on a diet containing 23 gm of protein he "developed loss of appetite, diminution of interest in his work, and a feeling of depression" Moller[17] used a low-calorie diet containing 37 5 gm of mixed proteins in 40 hospitalized obese persons His balance studies consisted of determination of urine urea nitrogen excretion in four of his subjects for a two-week period. In one of the four subjects the urea nitrogen excretion alone was greater than the 6 gm of nitrogen estimated in the diet Had adequate nitrogen balance studies been made, it is doubtful if any of his subjects would have been in nitrogen balance

Much has been made of the studies of Keeton and Dickson,[16] who concluded that "when the obese patient is fed 13 to 14 grams of protein per day the negative nitrogen balance is small." It is important to reexamine their data to determine their concept of "small" Their patients, all of whom were markedly obese, were given first 90 gm of protein, then 13 5 gm of protein, and finally 90 gm of protein Each period was six weeks, and the calories were maintained at basal -30 to 40% During the high-protein periods of 83 weeks, the nitrogen balance was negative in but 5 Furthermore, these weeks of negative nitrogen balance were scattered and unpredictable It is thus evident that their obese patients on diets containing 90 gm of protein were in nitrogen balance about 90% of the time On the other hand, during 41 patient-weeks of a low-protein diet, a positive nitrogen balance was recorded in only one week, but in 6 patient-weeks the negative balance was less than 1 gm daily In 34 of the 41 patient-weeks the negative nitrogen balance was greater than 1 gm daily Thus Keeton and Dickson s 'small" nitrogen balance means that their subjects were losing more than 233 gm of protein tissue each week 80% of the time The average loss of protein tissue per week for all 41 patient-weeks of observation averaged 455 gm This negative nitrogen balance can only be considered small" when compared with the losses during starvation, or after severe trauma, burns, operations, and illnesses

It may be argued that the nitrogen requirement of obese people may be less if they are given milk proteins In the studies of Stainsbury and Smith,[18] who kept 12 obese women on a daily diet of 1 qt of skimmed milk and six bananas for six days, the 1 qt of skimmed milk supplied about 34 6 gm of milk protein Ten of the 12 subjects were in negative nitrogen balance varying from 0 69 to 3 02 gm of nitrogen daily, representing a loss of 160 to 700 gm of protein tissue per week In another series of experiments involving six obese women, for six days 72 to 191 gm of lean beef was added to the milk and banana diet This brought the protein intake up to 48 5 to 84 5 gm daily, and five of the six subjects were in nitrogen balance It is thus obvious that 34 gm of milk protein even when supplemented by small amounts of banana protein is inadequate to maintain nitrogen balance in obese women during the first week of weight reduction However, small amounts of lean meat added to this diet produced a positive nitrogen balance in five of six persons during the first week of weight reduction

Further proof that nitrogen deficits are unnecessary most of the time, even in persons on extremely low-calorie diets, has been furnished by Strang, McClugage, and Evans[15] On a 336-calorie diet containing 59 gm of protein, their five patients were in negative nitrogen balance, which after the first three weeks, when labile nitrogen stores were being excreted, averaged 0 627 gm of nitrogen daily, equivalent to 146 gm of protein tissue per week. The addition of 20 gm of carbohydrate, increasing the calorie intake to 445, brought these patients into nitrogen balance

Thus, with established methods of determining minimum protein requirements, one finds that 14 or 21 gm of milk protein and 30 to 40 gm of mixed proteins in a calorie-deficient diet given obese subjects could not be expected to maintain nitrogen balance prior to the time that the protein tissue mass had been reduced to such an extent that the decreased nitrogen consumption would allow maintenance of nitrogen balance By this time the protein tissue mass would be so little and metabolism so low that the life of the patient would be in jeopardy

Recently the individual requirements of essential amino acids were determined by Rose[19] in a group of normal subjects on a diet giving sufficient calories Comparing the amino acids in 21 gm of milk proteins[20] with Rose's minimum shows the liquid formula diet to be short in cystine and methionine When the composition of liquid formula diet is compared with the minimum requirements given by Harte and Travers[21] and with those of Stare, Hegsted, and McKibbin,[22] it is also short in cystine and methionine and in addition short in phenylalanine, threonine, and isoleucine[22] These requirements of amino acids have so far been determined only for normal people on a diet giving sufficient calories and have not yet been determined in obese people in negative calorie balance However, there is no reason to anticipate that the combination of obesity and inadequate calories could make the individual amino acids in 21 gm of milk protein adequate, for the method of determining the sufficiency of each of the individual amino acids is dependent upon nitrogen balance methods

Fortunately, few people will adhere to either of these diets for long, so no great harm will be done other than to deplete the labile protein stores that the body in its wisdom has devised to protect us foolish mortals But there are compulsive dieters, just as there are compulsive drinkers and smokers and eaters, and in these subjects harm can be anticipated that neither the resources of the publishers nor the ingenuity of the research scientists can always correct The unqualified recommendation of these diets to the public is a disservice to science and to those it serves, the public

125 Worth St (13)

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COUNCIL ON FOODS AND NUTRITION

Statement of the Council

The Council has authorized publication of the following statement

EUGENE H STEVENSON, M S
Acting Secretary

THE "ROCKEFELLER DIET"

The Council on Foods and Nutrition has pointed out repeatedly that obesity is a medical problem and as such should be handled by a physician who will decide whether reduction in weight is necessary and safe and, if so, the *means* by which such reduction should be carried out Ethical advertisers of foods recommended for weight-reducing regimens have likewise stressed the importance of a medical consultation prior to reduction of the food intake

Because of the recent flurry of articles on weight-reduction diets in lay magazines, the reason for such a policy is reemphasized Weight reduction may be harmful to health or even endanger life if undertaken without full understanding of the problem A case in point is the mislabeled "Rockefeller Diet" that was first described with relevant data in two reputable scientific journals [1] The diet, minus the data, has been popularized by persons other than the original authors in the June 12 and June 26, 1956, issues of *Look* magazine and the July, 1956, number of *The Ladies Home Journal* It is reported that the article in *Look* magazine was not approved by the authors and, in fact, the diet deviated from the published material, including the addition of new menus The article in *The Ladies Home Journal* is accurate in its description of the preparation and use of the formulas, and the original authors did have an opportunity to see the proof before the article appeared The reasons that the patient must consult his physician before attempting weight reduction are insufficiently stressed in both of these articles and are barely mentioned in the former The position of the senior author on this matter has been clearly stated in a recent letter to the Editor published in THE JOURNAL [2]

The diet used in the experiments of the investigators at the Hospital of the Rockefeller Institute is relatively low in protein and, of course, is greatly reduced in energy content The experimental character of such an abnormal diet makes it imperative for the physician to recommend its use only after careful investigation The advocation of the use of this diet by nonmedical persons is condemned because of its possible harmful effect under certain situations

The Council reemphasizes that dieting because of obesity is a medical problem Editors of lay journals can cooperate in this important matter, if weight reduction and related problems are discussed in their columns, they should make sure that the health of the people is preserved by urging consultation with a physician The Council's services are available for reviewing popular articles on foods and nutrition

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MEDICAL EDUCATION in the UNITED STATES and CANADA

FIFTY SIXTH ANNUAL REPORT ON MEDICAL EDUCATION IN THE UNITED STATES AND CANADA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Edward L Turner, M D , Walter S Wiggins, M D , Glen R Shepherd, M D , Arthur N Springall, M D , and Anne Tipner

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ACKNOWLEDGMENT

The material on the following pages constitutes the 56th Annual Report on Medical Education in the United States and Canada, as compiled by the Council on Medical Education and Hospitals The data have been derived from official sources and concern schools of medicine and other matters pertinent to medical education Presentation of this information would not be possible without the full cooperation of medical school and university administrative officers, government officials, and many others The Council on Medical Education and Hospitals wishes to express great appreciation to the many individuals who have cooperated in providing the information on which this current report is based

INTRODUCTION

In 1925, a Commission on Medical Education was organized by the Association of American Medical Colleges "to make a study of the educational principles involved in medical education and licensure, and to make suggestions which would bring them into more satisfactory relationships with the newer conceptions and methods of university education, on the one hand, and with the needs of present-day society, on the other" The work of the commission was financed by contributions from the medical schools, the American Medical Association, the Rockefeller Foundation, the Carnegie Corporation, and the Josiah Macy, Jr Foundation The studies of the Commission on Medical Education were directed by Dr Willard C Rappleye, and its final report was made in 1932 This report,[1] made a quarter of a century ago, includes a section on medical education in the summary chapter that is of such current interest that it is being utilized as the introductory note to this 56th Annual Report of the Council on Medical Education and Hospitals on *Medical Education in the United States and Canada*

The horizons, opportunities, and responsibilities of medicine are expanding with great rapidity, and many of the artificial and traditional boundaries and subdivisions of science, public health, and practice are being obliterated Medical training can not be safely isolated from community needs, on the one hand, or from the larger fields of education—general, university, and postgraduate—on the other Its methods are becoming broader in response to the wider community, scientific, and public responsibilities which devolve upon physicians

A large majority of physicians and educators who are familiar with the question are of the opinion that present medical training compares very favorably with other fields of education, although only a few institutions have been able to approximate the highest standards in every detail Present-day education is held responsible by some for many of the inadequacies of medical service and practice and for the shortcomings of individual physicians for which however, other factors are usually largely responsible It must be kept in mind also that some of the defects in professional training are traceable to faults in earlier education

In the past the effort has been made in the four-year course to familiarize the student as far as time, energy, and capacity permitted with all the facts and methods in every field of medicine Instruction in the sciences has been augmented by numerous laboratory exercises in technical methods which have proven of value in securing knowledge, but some of these have relatively little value in the training of the student. There has been a natural tendency on the part of teachers in these subjects to overemphasize the drill in laboratory methods as an educational discipline It has been inevitable that the rapid expansion and subdivision of clinical medicine should be accompanied by an overaccentuation of teaching in the specialties Many of these have developed their own technical procedures, treatments, literature, and research

The hope of presenting the entire subject satisfactorily in the usual course must be abandoned as an unnecessary and futile endeavor, because no individual can be expected to master all phases of medicine Furthermore, many parts of the subject can not be taught by the faculty, they must be learned by the student through actual experience It is an axiom that all true education is self-education This immediately makes the student the unit of education, not the courses, the credit hours or the faculty, and requires that the methods of instruction should be modified accordingly

There is a distinct shift in many medical schools now toward placing greater responsibility on the student for his own *training* in an effort to emphasize learning by the student in contrast to

TABLE 1.—Approved Medical Schools and Schools of the Basic Sciences in the United States**

Approved Four Year Medical Schools

State	No	School	Ownership*	Year Organized	Tuition		1956-1957 Academic Year		Requirement by Years	Students by Classes, 1955-1956				Total	Part Time and Special Students	Graduates 7-1-55 to 6-30-56		
					Resident	Nonresident	Begins	Ends		1st Yr	2nd Yr	3rd Yr	4th Yr					
Ala	1	Medical College of Alabama, Birmingham	Pub	1945	$ 451	$ 851	9-11-56	6-2-57	3	81	67	75	73	296	4	73	Robert C Berson M D Dean	1
Ark	2	University of Arkansas School of Medicine, Little Rock	Pub	1879	391		9-10-56	6-8-57	3	96	81	78	62	317	2	62	F Douglas Lawrason M D Provost	2
Calif	3	College of Medical Evangelists, Loma Linda, Los Angeles	Prl	1909	1,292	1,292	9-3-56	6-5-57	3	102	101	101	81	385	0	81	Walter E Macpherson M D, Dean	3
	4	University of Southern California School of Med., Los Angeles	Prl	1885	950	950	9-21-56	6-21-57	3	69	64	69	69	271	0	68	Thomas H Brem M D Chrm., Admin Com	4
	5	Stanford University School of Medicine, San Francisco	Prl	1908	1,005	1,005	9-24-56	6-12-57	3	58	59	57	62	236	0	62	Windsor C Cutting, M D, Dean	5
	6	University of California School of Medicine, San Francisco	Pub	1864	334	684	9-17-56	6-5-57	3	77	82	76	76	311	0	76	John B deC M Saunders M D, Dean	6
	7	University of California School of Medicine, Los Angeles	Pub	1951	334	684	9-7-56	6-6-57	3	59	40	33	36	168	0	36	Stafford Warren M D, Dean	7
Colo	8	University of Colorado School of Medicine, Denver	Pub	1883	670	2,670	9-20-56	6-7-57	3	86	81	77	71	315	1	72	Robert C Lewis Ph D Dean	8
Conn	9	Yale University School of Medicine, New Haven	Prl	1812	900	900	9-19-56	6-1-57	3	79	81	83	73	316	0	71	Vernon Lippard, M D Dean	9
D C	10	Georgetown University School of Medicine, Washington	Prl	1851	900	960	9-10-56	5-18-57	Degree	115	98	118	110	441	0	110	Francis M Forster, M D, Dean	10
	11	George Washington University School of Medicine, Washington	Prl	1825	900	900	9-17-56	6-5-57	3	102	94	88	88	372	0	88	Walter A Bloedorn M D Dean	11
	12	Howard University College of Medicine, Washington	Prl	1869	687	687	9-11-56	6-7-57	72 Sem hrs	79	68	75	67	289	7	69	Robert S Jason, M D Dean	12
Fla	13	University of Miami School of Medicine, Coral Gables	Prl	1952	720	720	9-10-56	6-5-57	3	73	65	34	26	198	1	26	Homer F Marsh, Ph D Dean	13
Ga	14	Emory University School of Medicine, Emory University	Prl	1854	800	800	9-13-56	6-7-57	3	73	66	71	71	281	2	71	Arthur P Richardson M D, Dean	14
	15	Medical College of Georgia, Augusta	Pub	1828	435	690	9-5-56	6-8-57	3	101	101	82	68	352	5	67	Harry B O'Rear M D Dean	15
Ill	16	Chicago Medical School, Chicago	Prl	1912	961	961	10-1-56	6-15-57	4 & Degree	73	70	67	73	283	0	73	John J Sheinin, M D President	16
	17	Northwestern University Medical School, Chicago	Prl	1859	930	930	10-3-56	6-15-57	3	133	126	128	136	523	0	131	Richard H Young M D Dean	17
	18	Stritch School of Medicine of Loyola University, Chicago	Prl	1915	800	800	9-27-56	6-15-57	3	88	75	78	81	325	0	79	John F Sheehan, M D Dean	18
	19	University of Chicago, The School of Medicine, Chicago	Prl	1924	910	910	10-2-56	6-8-57	3	72	70	73	71	286	0	71	Lowell T Coggeshall, M D Dean, Division of Biological Sciences	19
	20	University of Illinois College of Medicine, Chicago	Pub	1882	325	613	10-1-56	6-22-57	3	167	165	152	162	646	0	159	Granville A Bennett, M D Dean	20
Ind	21	Indiana University School of Medicine, Bloomington, Indianapolis	Pub	1903	400	700	9-10-56	6-1-57	3	155	149	141	141	586	0	141	John D Van Nuys M D Dean	21
Iowa	22	State University of Iowa College of Medicine, Iowa City	Pub	1869	452	907	9-20-56	6-7-57	3	120	110	101	110	441	2	110	Norman B Nelson M D Dean	22
Kan	23	University of Kansas School of Medicine, Lawrence, Kansas City	Pub	1880	175	925	9-13-56	5-30-57	Degree	101	98	109	120	428	0	120	W Clarke Wescoe M D Dean	23
Ky	24	University of Louisville School of Medicine, Louisville	Prl	1837	800	1,200	9-10-56	6-1-57	3	97	93	96	93	379	0	93	J Murray Kinsman, M D Dean	24
La	25	Louisiana State University School of Medicine, New Orleans	Pub	1931	120	520	9-1-56	6-1-57	3	126	106	98	96	426	0	96	William W Frye M D Dean	25
	26	Tulane University of Louisiana School of Medicine, New Orleans	Prl	1834	900	900	9-10-56	6-3-57	3	131	129	126	125	511	0	124	Maxwell E Lapham, M D, Dean	26
Md	27	Johns Hopkins University School of Medicine, Baltimore	Prl	1893	970	970	9-17-56	6-11-57	Degree	71	75	68	69	283	0	69	Philip Bard, Ph D Dean	27
	28	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore	Pub	1807	735	885	9-20-56	6-8-57	3	96	83	96	100	375	0	99	William S Stone M D Dean	28
Mass	29	Boston University School of Medicine, Boston	Prl	1873	1,000	1,000	9-10-56	5-25-57	3	73	71	70	70	284	1	70	Chester S Keefer, M D Director	29
	30	Harvard Medical School, Boston	Prl	1782	1,002	1,002	9-24-56	6-13-57	2	118	117	112	153	500	0	151	George Packer Berry M D Dean	30
	31	Tufts University School of Medicine, Boston	Prl	1893	1,015	1,015	9-10-56	5-25-57	3	111	109	113	110	443	0	111	Joseph M Hayman Jr M D Dean	31
Mich	32	University of Michigan Medical School, Ann Arbor	Pub	1850	410	770	9-21-56	6-15-57	4	206	181	184	191	762	2	189	A C Furstenberg M D Dean	32
	33	Wayne State University College of Medicine, Detroit	Pub	1885	613		9-1-56	6-8-57	3	76	76	66	63	281	1	63	Gordon H Scott Ph D Dean	33
Minn	34	University of Minnesota Medical School, Minneapolis	Pub	1888	400	785	10-1-56	7-11-57	3	128	121	116	116	481	0	115	Harold S Diehl M D Dean	34
Mo	35	St Louis University School of Medicine, St Louis	Prl	1901	905	905	9-18-56	6-1-57	3	127	121	117	114	479	7	114	James W Colbert Jr, M D Dean	35
	36	Washington University School of Medicine, St Louis	Prl	1842	906	906	9-17-56	6-8-57	3	87	81	92	99	359	0	99	Oliver H Lowry M D Dean	36
Neb	37	Creighton University School of Medicine, Omaha	Prl	1892	812	812	9-17-56	6-1-57	3	76	71	72	78	297	0	77	F G Gillick M D Dean	37
	38	University of Nebraska College of Medicine, Omaha	Pub	1881	450	615	9-19-56	6-15-57	3	87	80	80	84	331	0	83	James P Tollman M D Dean	38
N Y	39	Albany Medical College, Albany	Prl	1838	1,007	1,007	9-10-56	5-29-57	3	61	59	56	48	224	0	48	Harold C Wiggers Ph D Dean	39
	40	University of Buffalo School of Medicine, Buffalo	Prl	1847	985	985	9-21-56	6-15-57	4	85	83	66	62	296	3	62	Stockton Kimball M D Dean	40
	41	Columbia University College of Physicians and Surgeons, New York City	Prl	1767	983	983	9-17-56	6-1-57	3	119	111	114	118	462	0	118	Willard C Rappleye M D Dean	41
	42	Cornell University Medical College, New York City	Prl	1898	1,000	1,000	9-12-56	6-12-57	3 & degree	84	83	84	87	338	0	84	E Hugh Luckey M D Dean	42
	43	New York Medical College, Flower and Fifth Avenue Hospitals, New York City	Prl	[illegible]	[illegible]	970	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Ralph E Snyder, M D Dean	43

	45	State University of New York College of Medicine New York City	Pub 1858	715	715	9-17-56	6-1-57	3	151	143	147	146	587	2	146	Howard Potter M D Dean	45
	46	State University of New York College of Medicine Syracuse	Pub 1872	715	715	9-10-56	6-8-57	3	80	72	64	70	286	0	71	William R Willard M D Dean	46
	47	University of Rochester School of Medicine and Dentistry Rochester	Pri 1925	900	900	9-10-56	6-8-57	3	71	70	68	64	273	0	64	Donald G Anderson M D Dean	47
N C	48	Duke University School of Medicine Durham	Pri 1930	1,020	1,020	10-1-56	6-15-57	3	77	76	80	81	314	0	80	Wilburt C Davison M D Dean	48
	49	Bowman Gray School of Medicine of Wake Forest College Winston Salem	Pri 1902	750	750	10-1-56	6-15-57	3	51	48	54	48	201	1	47	C C Carpenter M D Dean	49
	50	University of North Carolina School of Medicine Chapel Hill	Pub 1890	670	1,270	9-18-56	6-3-57	3	68	64	58	59	249	1	59	W Reece Berryhill M D Dean	50
Ohio	51	University of Cincinnati College of Medicine Cincinnati	Pub 1819	698	923	9-24-56	6-1-57	3	93	83	78	85	339	2	85	Stanley E Dorst M D Dean	51
	52	Western Reserve University School of Medicine Cleveland	Pri 1843	810	810	9-19-56	6-11-57	3	83	85	76	78	322	1	78	Joseph T Wearn M D Dean	52
	53	Ohio State University College of Medicine Columbus	Pub 1914	576		10-2-56	6-7-57	3	151	144	135	143	573	0	144	Charles A Doan M D Dean	53
Okla	54	University of Oklahoma School of Medicine Oklahoma City	Pub 1900	450	800	9-17-56	5-25-57	3	101	89	91	98	379	0	96	Mark R Everett Ph D Dean	54
Ore	55	University of Oregon Medical School Portland	Pub 1887	561	819	10-1-56	6-15-57	3	77	75	69	71	292	15	71	D W E Baird M D Dean	55
Pa	56	Hahnemann Medical College and Hospital of Philadelphia Philadelphia	Pri 1848	847	847	9-6-56	6-8-57	3	109	98	97	95	399	0	95	Harold A Taggart M D Acting Dean	56
	57	Jefferson Medical College of Philadelphia Philadelphia	Pri 1825	883	883	9-10-56	6-13-57	3	176	164	166	171	677	0	171	George Allen Bennett M D Dean	57
	58	Temple University School of Medicine Philadelphia	Pri 1901	850	850	9-10-56	6-10-57	3	128	119	114	127	488	0	125	William N Parkinson M D Vice President and Dean	58
	59	University of Pennsylvania School of Medicine Philadelphia	Pri 1765	970	970	9-4-56	6-12-57	3	125	123	128	124	500	0	124	John McK Mitchell M D Dean	59
	60	Woman's Medical College of Pennsylvania Philadelphia	Pri 1850	975	975	9-10-56	6-13-57	3	51	47	44	40	182	0	40	Marion Fay Ph D Dean	60
	61	University of Pittsburgh School of Medicine Pittsburgh	Pri 1886	815	815	9-10-56	6-8-57	3	100	84	92	87	363	0	87	William S McEllroy M D Dean	61
S C	62	Medical College of South Carolina Charleston	Pub 1823	437	1,537	9-13-56	6-6-57	3	79	74	76	67	296	0	67	John T Cuttino M D Dean	62
Tenn	63	University of Tennessee College of Medicine Memphis	Pub 1876	450	675	7-5-56	6-12-57	3	217	179	186	199	781	0	199	O W Hyman Ph D Vice President and Dean	63
	64	Meharry Medical College Nashville	Pri 1876	744	744	9-17-56	6-3-57	3	75	64	58	65	262	11	62	Daniel T Rolfe M D Dean	64
	65	Vanderbilt University School of Medicine Nashville	Pri 1874	810	810	9-21-56	6-2-57	Degree	51	49	53	51	204	1	51	John B Youmans M D Dean	65
Texas	66	University of Texas Southwestern Medical School Dallas	Pub 1943	440	300	9-10-56	6-1-57	3	102	93	100	99	394	8	98	Atticus J Gill M D Dean	66
	67	University of Texas Medical Branch Galveston	Pub 1890	92	312	9-18-56	6-1-57	3	166	159	139	150	614	0	151	John B Truslow M D Executive Director	67
	68	Baylor University College of Medicine Houston	Pri 1900	797	797	9-10-56	5-27-57	3	87	85	93	77	342	7	77	Stanley W Olson M D Dean	68
Utah	69	University of Utah School of Medicine Salt Lake City	Pub 1905	480	830	9-21-56	6-57	3	54	54	58	43	209	3	40	Philip B Price M D Dean	69
Vt	70	University of Vermont College of Medicine Burlington	Pub 1822	551	1,004	9-11-56	6-10-57	4	50	46	40	44	180	0	41	George A Wolf M D Dean	70
Va	71	University of Virginia School of Medicine Charlottesville	Pub 1827	404	864	9-11-56	6-17-57	3	77	71	79	62	289	0	61	Thomas Harrison Hunter M D Dean	71
	72	Medical College of Virginia Richmond	Pub 1838	596	921	9-5-56	5-28-57	3	84	82	101	99	366	0	98	Erling S Hegre Ph D Chrm Interim Committee	72
Wash	73	University of Washington School of Medicine Seattle	Pub 1945	300	495	10-3-56	6-14-57	3	77	71	72	68	288	2	68	George N Aagaard M D Dean	73
Wis	74	University of Wisconsin Medical School Madison	Pub 1907	310	600	9-24-56	6-17-57	3	87	78	81	79	325	9	79	John Z Bowers M D Dean	74
	75	Marquette University School of Medicine Milwaukee	Pri 1912	900	900	9-10-56	5-31-57	3	102	101	101	90	394	9	87	John S Hirschboeck M D Dean	75
P R	76	University of Puerto Rico School of Medicine San Juan	Pub 1949	539	539	8-13-56	5-18-57	3	52	47	42	43	184	0	43	J Harold Hinman M D Dean	76
		Totals							7,423	6,958	6,893	6,886	28,160	116	6,845		
		Approved Schools of Basic Medical Sciences															
Miss	1	University of Mississippi School of Medicine Jackson	Pub 1903	600	810	9-24-56	6-20-57	3	80	51			131	2		David S Pankratz M D Dean	1
Mo	2	University of Missouri School of Medicine Columbia	Pub 1845	319		9-18-56	6-8-57	3	45	43			88	4		Roscoe L Pullen M D Dean	2
N H	3	Dartmouth Medical School Hanover	Pri 1797	680	680	9-16-56	6-16-57	Degree	25	23			48	1		Rolf C Syvertsen M D Dean	3
N Dak	4	University of North Dakota School of Medicine Grand Forks	Pub 1905	178	358	9-4-56	6-8-57	3	40	37			77	1		Theodore H Harwood M D Dean	4
S Dak	5	University of South Dakota School of Medical Sciences Vermillion	Pub 1907	260	470	8-27-56	6-3-57	3	42	30			72	1		W L Hard Ph D Dean	5
W Va	6	West Virginia University School of Medicine Morgantown	Pub 1912	204	700	9-11-56	6-3-57	3	31	29			60	0		Edward J Van Liere M D Dean	6
		Totals							263	213	—	—	479	15	—		
		Grand Totals (Four Year Schools and Schools of Basic Medical Sciences)							7,686	7,171	6,893	6,886	28,639	131	6,845		
		Schools Developing New Programs															
		University of Mississippi School of Medicine Jackson	Pub 1903	600	810	9-24-56	6-20-57	3			28		28			David S Pankratz M D Dean	
		University of Missouri School of Medicine Columbia	Pub 1845	319		9-18-56	6-8-57	3			25		25			Roscoe L Pullen M D Dean	
		Albert Einstein College of Medicine New York	Pri 1955	1,050	1,050	9-17-56	6-21-57	3	56				56			Marcus D Kogel M D, Dean	
		Totals							7,742	7,171	6,946	6,886	28,748	131	6,845		

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* Pub—Public Pri—Private

** Schools developing new programs not yet eligible for full approval included at the end of the table and trends, possible overemphasis on specialization or certain facets of specialization, importance of greater knowledge as to needs in various specialty fields, curriculum studies, and modifications, selection of students, factors influencing distribution of medical school graduates and their ultimate decisions as to place and type of practice, possible modification in programs of premedical and medical education, and possibilities of shortening time factors in basic indoctrination Many other questions will present themselves to those who carefully review and analyze these important contributions to the knowledge of what is happening to medical school graduates today Are these trends answering the needs of the times? How can medical schools most effectively conduct their programs so that the constantly overlapping and increasing responsibilities in undergraduate, graduate, and postgraduate education can be met most satisfactorily? The problems and challenges confronted in medical education today are numerous, stimulating, and demanding of constant study and efforts toward resolution

Table 2 —*Approved Medical Schools and Approved*

			Year Organized	Tuition		1956-1957 Academic Year		Years Current Pre-Medical Requirements
				Resident	Nonresident	Begins	Ends	
		Approved Medical Schools						
Alta	1	University of Alberta Faculty of Medicine, Edmonton	1913	351	351	9- 4 56	5- 4 57	3
B C	2	University of British Columbia School of Medicine Vancouver	1949	445	445	9- 4-56	5- 4 57	3
Man	3	University of Manitoba Faculty of Medicine, Winnipeg	1883	491	496	9-10-56	5-15-57	3
N S	4	Dalhousie University Faculty of Medicine Halifax	1867	481	481	9- 4 56	5-16-57	3
Ont	5	Queen s University Faculty of Medicine Kingston	1854	470	470	9-10-56	5-10-57	2
	6	University of Ottawa Faculty of Medicine, Ottawa	1945	515	815	9- 5-56	4 30-57	3
	7	University of Western Ontario Faculty of Medicine, London	1881	575	575	9-11-56	5-18 57	3
	8	University of Toronto Faculty of Medicine, Toronto	1843	591	591	9-26-56	5- 4 57	2
Que	9	McGill University Faculty of Medicine, Montreal	1823	594	594	9- 5-56	5-21 57	3
	10	University of Montreal Faculty of Medicine, Montreal	1843	400	480	9-11 56	5-24 57	Degree
	11	Laval University Faculty of Medicine, Quebec	1848	425	625	9- 5-56	6- 1 57	Degree
		Totals						
		Approved School of Basic Medical Sciences						
Sask	1	University of Saskatchewan College of Medicine, Saskatoon	1926	468	468	9-20-56	5-21-57	2
		Grand Total (Four year schools and Saskatchewan)						
		Newly Developing Medical School						
		University of Saskatchewan College of Medicine Saskatoon**	1926	518	518	9 4 56	4 30-57	2
		Totals						

* Intern and premedical figures not included

** Currently developing full four year program Not yet eligible for approval

MEDICAL SCHOOLS

APPROVED MEDICAL SCHOOLS

In the academic year 1955-1956, the University of Miami School of Medicine in Coral Gables, Fla , completed the initial development of its four-year undergraduate program in medicine After a liaison survey, this institution was granted approval by the Council on Medical Education and Hospitals and membership in the Association of American Medical Colleges This increases to 76 the number of approved medical schools in the United States with full four-year programs in effect There continue to be six approved two-year schools of basic medical sciences, although three of these (see section on newly developing schools) are in the process of expanding to four-year programs

In Canada, there are 11 approved four-year schools and one approved two-year school of basic medical sciences The latter, the University of Saskatchewan College of Medicine, had its first third-year class in attendance during the year of this report and will be eligible for survey as a four-year school during the forthcoming academic year Table 1 lists by states the four-year schools and the schools of basic medical sciences, indicating whether publicly or privately owned, year of organization, enrollment in each class, and other pertinent data Similar information concerning Canadian schools is given in table 2

There have been certain changes in the classification of schools by type of ownership since the last report The School of Medicine of the University of Louisville has been listed for many years as a municipally owned institution Recent correspondence from officials of the University of Louisville points out that the university was chartered by the Commonwealth of Kentucky in 1846 as a private corporation Under the terms of this charter, it is governed by a board of trustees appointed by the mayor and aldermen of the city of Louisville It has not been subject to either state or local regulations affecting public institutions It receives no designated tax support from the city of Louisville or other governmental agency, although the city annually makes an appropriation to the university at the request of the board of trustees Thus, the School of Medicine of the University of Louisville has been classified erroneously in the past and is now properly designated as a privately owned institution

As of July 1, 1956, Wayne University and its college of medicine in Detroit became a state institution owned by the state of Michigan and is to be operated under the authority of a board of governors Now named Wayne State University, it is anticipated that this change in ownership will result in increased financial support, allowing for future enlargement and improvement of the physical plant of the medical school and subsequent increase in the student enrollment These changes leave the University of Cincinnati College of Medicine as the only remaining municipally owned medical school In this and subsequent reports, type of ownership shall be designated as public or private with no further reference to state or municipal ownership It should be emphasized that this classification deals with ownership and not source of financial support Certain privately owned medical schools receive more support from public funds than do some of the publicly owned schools With these modifications and the addition of the University of Miami School of Medicine, there are now 43 privately owned and 39 publicly owned medical schools

NEWLY DEVELOPING MEDICAL SCHOOLS

As was noted in last year s report, entirely new four-year schools are in the process of development at New York City (Albert Einstein College of Medicine), Jersey City (Seton Hall College of Medicine and Dentistry), and Gainesville, Fla (University of Florida School of Medicine) The initial class has completed its first year of study at Albert Einstein Seton Hall and the University of Florida will admit their initial classes in September, 1956

Also previously reported were the extension of former two-year programs to full four-year programs at the schools of medicine of the University of Mississippi, University of Missouri, and West Virginia University The former two have had third-year students in attendance during the past academic year and will graduate their first classes during the coming academic year The school of medicine at West Virginia University expects to let contracts this summer for construction of its teaching hospital to be completed in the summer of 1959 If this schedule is followed, the first third-year class will be enrolled in September, 1959, and graduation will take place in 1961 Other reports have contained reference to the proposal for a new medical school at the University of Kentucky The present legislature has appropriated funds for the construction of the medical school and a teaching hospital It is planned that this construction will proceed so that the first class can be admitted in September, 1959

Table 3 presents in tabular form information about newly developing schools Interest in the development of a medical school as part of the University of Connecticut has been mentioned in earlier reports The last legislature appropriated funds for preliminary planning, including site determination No further action is expected until the next session of the legislature, but the Republican platform in the state includes favorable action on the proposal for the creation of the medical school in Hartford Although the Democratic platform has not as yet been published, it seems likely that that party will also endorse this proposal, since it has previously looked upon it with favor

TABLE 3 —*Medical Schools Currently Developing Four Year Programs*

Name of Institution	New or Extended Development	Estimated Graduation Date of First Class
University of Mississippi School of Medicine	Formerly 2 year school	1957
University of Missouri School of Medicine	Formerly 2 year school	1957
West Virginia University School of Medicine	Formerly 2 year school	1961
Albert Einstein College of Medicine	Completely new school	1959
Seton Hall College of Medicine and Dentistry	Completely new school	1960
University of Florida School of Medicine	Completely new school	1960
University of Kentucky School of Medicine	Completely new school	1963

in Canada

		Students by Classes 1955-1956										
First Pre Medical Year	Second Pre-Medical Year	1st Year	2nd Year	3rd Year	4th Year	Additional Year	Required Intern Year	Total	Part Time and Irregular Students	Graduates 7-1-55 to 6-30-56		
		68	40	50	58			216	0	59	John W Scott M D Dean	1
		60	48	52	62			222	0	60	John W Patterson M.D Dean	2
		72	61	60	47			240	0	64	Lennox G Bell M.D Dean	3
		56	53	54	0		51	214	0	51	C B Stewart M D Dean	4
65		64	63	48	50	(60)		251	0	50	G Harold Ettinger M.D., Dean	5
23	28	71	49	52	33			256	2	32	A L Richard M D Dean	6
		57	58	58	58			231	0	65	J B Collip M.D Dean	7
131	119	163	125	115	151			804	0	151	J A MacFarlane M D Dean	8
		115	106	97	108			426	0	108	C Lyman Duff M.D Dean	9
		129	105	112	98			444	0	98	Wilbrod Bonin M.D Dean	10
		139	135	129	111		80	594	0	78	Jean Baptiste Jobin M D Dean	11
219	147	994	843	847	[illegible]	60	131	3 900	2	816		
		41	40					81	0		J Wendell Macleod M D Dean	1
219	147	1 035	883	847 30	[illegible]	60	131	3 981 30	2	816		
219	147	1 035	883	877	[illegible]	60	131	4 011	2	816	J Wendell Macleod M D Dean	

DEVELOPMENTS OF INTEREST IN MEDICAL SCHOOLS

Fifty-seven medical schools in the United States and five of the Canadian institutions reported developments of major interest during the past year These developments included areas such as administrative organization, curriculum studies and modification, increased faculty personnel, augmented faculty salaries, major new construction, increased resources for student loans and scholarships, changes in methods of selection of students, and additions to endowment resources

Thirty schools in the United States and four of the Canadian institutions reported curriculum planning or activation of previously determined curriculum changes Curriculum studies reflect the constant dissatisfaction with certain aspects of the medical course and a sincere desire on the part of medical educators to improve undergraduate opportunities in this field as well as the continuing need for revision in keeping with the changing scene Curriculum innovations vary from the introduction of a variety of weekly lectures on nonmedical subjects by authorities in the various fields of music, literature, art, philosophy, and history to an objective analysis or reorganization of the total current program of the institution Under the direction of its section of physical medicine and rehabilitation, Yale has established a program of long-term observation and follow-up of patients with chronic illnesses undergoing rehabilitation, and its section of preventive medicine has organized a program in which selected patients from the outpatient clinics are visited in their homes and elsewhere for epidemiological investigation Miami is directing attention to interdepartmental inte-

-gration, to the elimination of "extraneous" course work, and to the provision of increased unassigned time for students in its curriculum structure

The Medical College of Georgia has expanded and reorganized its faculty because of the service additions required of its clinical faculty in the new Eugene Talmadge Memorial Hospital, which began to function as an integrated unit of the Medical College early in 1956 At the University of Illinois, two of the three quarters of physiology formerly taught in the second year have been transferred to the first year with the total first-year instructional plan revised so as to enable much correlative and integrative teaching, including the utilization of frequent correlation conferences The second-year program has been revised to enhance opportunities for correlative and integrated teaching in microbiology, pathology, pharmacology, and physical diagnosis This has made it possible to incorporate much of the introductory instruction in clinical subjects, formerly offered through lectures, in these correlated teaching exercises At Louisville, all students beginning medicine in the class of 1956 will eventually experience a four-quarter senior year, one quarter of which will provide an elective period of study

The University of Nebraska has modified its curriculum so as to develop increasing use of small group teaching Albany Medical College has developed curriculum plans to completely alter that portion of the second-year program concerned with the introduction to the numerous clinical entities Introductory lecture courses are being replaced by an integrated interdepartmental program oriented around history taking, physical diagnosis, and interview techniques under the title, Introduction to Medicine Albany Medical College also reports that the coordinated program of physiology and biochemistry initiated last year has been quite successful and has proved to be stimulating and rewarding to both students and teaching staff

New York University has developed a special honors program in its curriculum planning, to which 12 to 15 students will be admitted annually Currently, New York University is conducting a general review of the curriculum of the college of medicine and of the postgraduate medical school as well as the relationship of the medical center to the university and its role in the paramedical educational programs Harvard Medical School and Johns Hopkins University School of Medicine both report intensive curriculum studies and possible revisions to be announced at a later date The University of Pennsylvania is also conducting a comprehensive study of its entire program of medical education The University of Rochester School of Medicine has undertaken a long-range study of its program, with the anticipation that it will extend through another two to three years before any major changes are decided upon and put into effect

At Albert Einstein College of Medicine, biochemistry and physiology are being taught as a single course The lecture, laboratory, and conference work traditionally encompassed by these two subjects, it is felt, can be well integrated and made more effective The new laboratories of this developing medical school have been designed to permit integrated teaching for small groups of students The State University of New York College of Medicine at Syracuse is modifying its curriculum so as to provide continuity of outpatient experience over a 12-to-18-week period in place of the former 6-week experience The University of Pittsburgh reports radical changes in its curriculum, with increased emphasis on individual and small group teaching on both inpatient and outpatient services

The University of Oregon and the University of Utah report intensive studies of their curriculums, with a view toward basic improvements At the University of Washington, electives in the first two years have been introduced two afternoons weekly throughout the year, and a seven-week elective period is offered in the fourth year The faculty at the University of Wisconsin Medical School has been engaged in a comprehensive curriculum analysis The preceptorship program at Wisconsin has been in operation for 28 years, so that a considerable experience with this form of medical education has accrued Part of the current study at Wisconsin, therefore, includes a detailed review of the educational objectives, methodology, impact on student attitudes, and relationship of the preceptorship experience to the total educational program

The University of Alberta Medical Faculty, Dalhousie University Faculty of Medicine, McGill University Faculty of Medicine, and the University of Saskatchewan Faculty of Medicine all report curriculum studies in progress or the activation of previously formulated programs

Fourteen schools in the United States and two of the Canadian medical schools report changes of administrative organization These vary from changes of key administrative personnel to major readjustments of departmental interrelationship or such significant developments as the transfer of status from a municipal to state institution About one-fourth of the medical schools in the United States and one medical school in Canada reported construction of physical facilities related to their activities Sixteen institutions in the United States reported augmentation of resources for student loans and/or scholarships Twelve of the schools indicated changes in procedures of student selection Seven medical schools indicated significant increases in faculty personnel, and 16 reported augmented salary levels Sixteen schools in the United States also reported significant additions to their endowment resources

CONSTRUCTION OF FACILITIES

During the year 1955-1956, 16 schools in the United States and one in Canada reported the completion of construction projects representing a total expenditure of approximately 65 million dollars Included in this were new basic science buildings at the State University of New York at Brooklyn, as well as at Albert Einstein, and completely new teaching hospitals at Arkansas, Oregon, Temple, and South Carolina schools of medicine During the same period, 17 schools in the United States and two in Canada have undertaken new construction projects totaling approximately 45 million dollars Howard, Michigan, and Laval schools of medicine have started new basic science buildings, and the University of Washington has begun construction on the major unit of its teaching hospital There has been a significant decrease since last year in the number and cost of projects initiated and projects completed

MEDICAL SCHOOL FINANCING AND ESTIMATED 1956-1957 RESOURCES AND BUDGETS

Data submitted in the questionnaire-replies from which statistical information for this report was obtained indicate that, in keeping with the trend over the past several years, there has been further augmentation in the projected 1956-1957 total over-all basic medical school operating budgets as compared to those projected last year for 1955-1956 In this report the "basic medical school operating budget" is restricted to funds utilized for the operating activities of the school exclusive of appropriations for hospital and/or clinic operation and maintenance or grants-in-aid from outside sources for research or teaching This basic operating budget, which represents information from 76 approved four-year schools and 6 approved schools of basic medical science is projected as $111,167,673 For 75 approved four-year schools and 6 approved schools of basic medical science the projected 1955-1956 basic operating budget was $98,012,621 The 1956-1957 projection, therefore, represents a differential increase of $13,155,052, with the addition of only one four-year medical school

Forty-eight medical schools report estimated basic operating budget funds from governmental (state, municipal, federal) sources totaling $52,701,162 (47 5%) for 1956-1957 as compared to $47,727,835 (48 7%) in 1955-1956 Anticipated endowment income is reported from 50 medical schools as approximately $12,775,283 (11 5%) as compared to $10,358,181 (10 6%) for 47 institutions reporting such sources for 1955-1956 Tuition income represents a relatively smaller percentage of the total estimated operating budget resource for 1956-1957 and will constitute $20,305,535 (18 2%) as compared to $19,210,304 (19 2%) for the past year Thirty-five medical schools estimate a total of $7,507,980 (6 7%) from general university fund allocation as compared to $6,286,416 (6 3%) the previous year Estimated gifts, grants, and other sources reported by 78 schools this year represent $17,877,713 (16 1%) as compared to $14,429,885 (15 2%) in 1955-1956 Table 4 presents this data in summarized form

TABLE 4 —*Estimated Sources of Basic Medical Operating Budgets, 1956-1957*

No of Schools	Source of Funds	Amount	% of Total
48	Government (state) municipal federal) appropriation	$ 52 701 162	47 5
50	Endowment	12 775,283	11 5
80	Tuition Income	20,305,535	18 2
35	General University Funds	7,507,980	6 7
78	Gifts Grants and Other Sources	17,877 713	16 1
	Total	$111 167,673	100 0

As was indicated in the last presentation of data on anticipated medical school budgets covering basic operations, it is important for the reader to appreciate the fact that this summarization constitutes a general picture of the source of total funds in each category in relation to the total projected 1956-1957 basic operating budget for all of the schools The percentage allocations, therefore, do not reflect the actual distribution of sources of financing within the individual schools but represent a pooled composite This fact will be further clarified by noting that in table 4, 34 of the 82 schools receive no basic operating funds from governmental sources, 32 have no endowment income, and only 35 reported allocations from general university funds Furthermore, in some of the state institutions, appropriations from governmental sources constitute the major source of all basic operating funds, while, in some of the private schools, tuition and endowment constitute the greatest sources of anticipated income

TABLE 5 —*Estimated Funds Available to Medical Schools 1956-1957*
(Exclusive of funds available for construction and operational costs of major clinical facilities)

Category	Amount
Basic budgeted funds and appropriations (table 4)	$111 167,673
Research grants from outside sources	58 435,518
Teaching grants from outside sources	9 047,269
Total	$178,650 460

Table 5 summarizes the over-all estimated funds available to medical schools for the 1956-1957 period and includes research grants and teaching grants from outside sources as well as basic operating budgets There is a further increase in anticipated estimates for support of both research and teaching grants during the 1956-1957 period as compared to the previous year Seventeen of the medical schools estimate research grants from outside sources in excess of one million dollars Of these, eight institutions anticipate such support in excess of 2 million dollars and two of this group indicate estimates of over 3 million dollars Teaching grants from outside agencies vary from $25,000 to $400,000 Seventy-five of the 76 approved four-year schools and the 6 two-year schools of basic medical sciences will be recipients of both research and teaching grants from outside sources during 1956-1957 The single exception is one of the state-supported schools, which receives over $300,000 in grants from outside sources supporting research but which has no grants from outside sources in support of teaching programs

Significant financial support of medical education has been made during the past several months by the Commonwealth Fund and the Ford Foundation through the medium of special grants Ten university medical schools received appropriations from the Commonwealth Fund totaling $7,150,000 The purpose of these awards was to aid the recipient institutions to initiate or maintain creative programs in medical education Commonwealth Fund executives were "convinced of the compelling need for medical schools to clarify their educational objectives in the postwar world " The institutions who were recipients of Commonwealth Fund appropriations will undoubtedly find it possible to initiate and/or strengthen experimental programs that should be of general interest and value, in part or in total, to the advancement of medical education in the years ahead

The Ford Foundation in December, 1955, announced that it had allocated 90 million dollars to privately supported medical schools as endowment to aid them in strengthening their instruction At the time of this annual Report on Medical Education in the United States and Canada, an announcement has not yet been made as to the exact allocation of funds from this grant to the individual schools In March, 1956, the board of trustees of the Ford Foundation also approved an appropriation of 10 million dollars for a 5-to-10-year program of matching grants to the National Fund for Medical Education This appropriation was designed to provide for grants to assist the National Fund in its efforts to strengthen the financial support for medical schools throughout the United States and to develop new sources of such support Matchable funds include all contributions made to the National Fund except any restricted for distribution to particular schools or for specific purposes In other words, matchable funds include only those contributed in support of medical education in general and will not include any contributions with specific designation of recipient institution All undesignated contributions to the National Fund will be subject to matching on a sliding formula up to an annual maximum of 2 million dollars This Ford Foundation appropriation, therefore, greatly enhances the potentialities of the National Fund for Medical Education and should stimulate greater interest on the part of industry to augment the support of medical education

TABLE 6—*Resumé of American Medical Education Foundation and National Fund for Medical Education Allocation to Medical Schools Since 1951*

Amount raised by American Medical Education Foundation transferred and distributed through National Fund for Medical Education (January, 1951, through December 1955)	$4 684 312 47
Amount raised by National Fund for Medical Education and distributed with American Medical Education Foundation funds (January 1951, through December 1955)	$4 914 179 81
Total amount distributed to medical schools through National Fund for Medical Education (January 1951 through December 1955)	$9 598 491 48

It would seem that the appropriation of these two great philanthropic agencies gave recognition to the fact that medical schools today are complex centers of medical science, concerned with medical education in all of its aspects as well as with the conduct of activities directed toward the constant search for new knowledge in relation to the prevention, diagnosis, and treatment of human illness They represent a vital "shot in the arm" in support of the increasing financial needs of medical education that must be met if current high standards of education and training in this field are not jeopardized At the June, 1956, meeting of the board of trustees of the American Medical Education Foundation, the executive director reported on the funds distributed from this source through the National Fund for Medical Education since 1951 Table 6 summarizes this information

Both the American Medical Education Foundation and the National Fund for Medical Education have shown growth during the past year The Ford Foundation appropriation of 10 million dollars to the National Fund for Medical Education designed to match unrestricted funds up to an annual maximum of 2 million dollars will undoubtedly result in a material increase in support for schools through the National Fund in the future The fact that many physicians prefer to assign their contributions through the American Medical Education Foundation to the institutions from which they received their medical degrees has rendered a considerable portion of funds received by the American Medical Education Foundation ineligible for matching with Ford Foundation funds Contributions for specific schools through the medium of the American Medical Education Foundation have been encouraged rather than discouraged, while the National Fund has adhered to the original concept that its resources should be for medical education in general and not restricted to a specific institution or a specific group of institutions

The Board of Trustees of the American Medical Association has continued to contribute $100,000 to the American Medical Education Foundation and to underwrite the costs of its fund raising program It is to be hoped that both the American Medical Education Foundation and the National Fund for Medical Education will continue to grow rapidly, gaining in contributors and in resources in the interests of increased support for medical education

CHARACTERISTICS OF THE CURRICULUM IN THE BASIC MEDICAL SCIENCES

The continuing and perhaps increasing interest in the structure of the educational pattern in medicine is demonstrated by the fact that in 30 schools in the United States the undergraduate medical curriculum is under active study This Council has received many inquiries indicating a particular desire for information concerning certain gross national characteristics of the medical school curriculum

In response to these inquiries, the medical school questionnaire, which largely serves as the basis for this report, included questions relevant to the distribution of hours during the first two years of the curriculum Information as to how these hours are utilized was also requested Data pertinent to the five major basic medical sciences and pathology are presented in this report A similar presentation of data concerning other components (introduction to the clinical sciences, physical diagnosis, clinical laboratory diagnosis, etc) of the curriculum of the first two medical years will be made in next year's report

In the disciplines dealt with here, information is given for the subjects in those five schools with the greatest total assignment of hours in that subject, for those five schools with the smallest assignment of hours, and for the five schools whose hour assignments place them in a median position The material should readily lend itself to comparative study of curriculum structure in the subject concerned for all medical schools

Anatomy

In table 7, the total hours of anatomy were computed by adding hours allocated to the subdivisions of anatomy Where embryology was listed separately by any school, it has been included in the hours designated for microanatomy In an unknown number of instances, hour assignments in neuroanatomy also included neurophysiology

Table 7 —*Curriculum Structure in Anatomy*

School	Total Hours	Lecture Hours	Seminar or Conference Hours	Laboratory or Demonstration Hours	Hours Gross	Hours Microanatomy	Hours Neurology
Maximum Group							
Stanford	770	67	42	661	462	198	110
Georgia	758	132	25	601	418	241	99
Ohio	726	165	0	561	330	264	132
Jefferson	720	142	0	578	408	212	100
Northwestern	708	172	0	536	348	261	99
Median Group							
SUNY Syracuse	607	187	10	410	330	202	75
Hahnemann	626	152	47	427	320	200	106
Albany	603	102	0	501	360	132	111
Wayne	600	168	0	432	336	144	120
U of Pennsylvania	557	23	71	463	344	96	117
Minimum Group							
South Carolina	478	82	0	396	279	100	99
Illinois	472	152	0	320	236	162	74
Johns Hopkins	448	73	9	366	203	176	69
Yale	445	57	48	340	280	98	67
U of Chicago	408	0	0	408	204	96	108

Allocations in gross anatomy ranged from a maximum of 462 hours to a minimum of 187, with a median of 330, in microscopic anatomy there is a range from 270 to 63, with 176 hours as the median, in neuroanatomy the maximum is 165, and minimum 66, with 99 hours in the median position These ranges are for all schools, not just those listed in the table

Biochemistry

Table 8 presents the gross curriculum structure in biochemistry in those schools whose hour assignments place them in the categories previously described Since no subdivisions of the subject are considered, it has been possible to determine the spread and median for utilization of the most commonly used methods of instruction for all schools The maximum hours devoted to lectures are 120, the median 73, and the minimum 0 Comparable figures for seminars or conferences are 127, 0, and 0, and for laboratory work and demonstrations 260, 140, and 56

Table 8 —*Curriculum Structure in Biochemistry*

School	Total Hours	Lecture Hours	Seminar or Conference Hours	Laboratory or Demonstration Hours
Maximum Group				
Louisville	338	68	10	260
Howard	324	108	0	216
Cincinnati	314	60	14	240
Tulane	303	63	20	220
Washington U	302	54	32	216
Median Group				
North Dakota	234	72	18	144
U of Pennsylvania	234	54	36	144
Einstein	229	28	40	161
Michigan	224	84	0	140
Mississippi	224	80	0	144
Minimum Group				
Oklahoma	176	80	0	96
St Louis	170	62	0	108
Illinois	168	72	0	96
Yale	160	45	25	90
Wisconsin	144	20	0	124

Physiology

The curricular pattern for physiology for the selected schools is given in table 9 The utilization of lectures in all medical schools ranges from a maximum of 190 hours to a minimum of 28 hours The median school assigns 90 hours for lectures The maximum allocation to seminars or conferences is 127 hours and the minimum is 0 As in biochemistry, since less than half of the schools have any scheduled hours for seminars or conferences, the median is also 0

Table 9 —*Curriculum Structure in Physiology*

School	Total Hours	Lecture Hours	Seminar or Conference Hours	Laboratory or Demonstration Hours
Maximum Group				
Emory	410	190	0	220
Rochester	410	86	40	284
St Louis	356	79	25	252
Southwestern	355	96	70	189
U Calif Los Angeles	340	109	53	178
Median Group				
Creighton	250	125	0	125
Mississippi	256	112	0	144
Tufts	256	32	64	160
Harvard	256	59	50	147
Iowa	256	100	20	136
Minimum Group				
Wisconsin	192	95	0	97
John Hopkins	187	48	14	125
Howard	180	72	0	108
Yale	171	59	15	97
U of Washington	100	60	0	40

Pharmacology

The gross characteristics of the curriculums in pharmacology for the three selected groups of schools appears in table 10 Maximum, median, and minimum allocations for lectures are 179, 64, and 0 hours, for seminars and conferences 80, 12, and 0, and for laboratory and demonstration 196, 80, and 0

Table 10 —*Curriculum Structure in Pharmacology*

School	Total Hours	Lecture Hours	Seminar or Conference Hours	Laboratory or Demonstration Hours
Maximum Group				
Bowman Gray	358	179	42	137
SUNY Syracuse	293	75	22	196
Jefferson	252	108	18	126
Medical Evangelists	216	100	16	100
Maryland	216	96	24	96
Median Group				
Rochester	168	40	8	120
Stritch	165	60	0	105
Baylor	165	50	16	99
U Calif Los Angeles	164	59	36	69
Woman's Medical	163	78	37	48
Minimum Group				
U of Chicago	108	60	0	48
Louisville	99	51	15	33
Wayne	96	48	0	48
Western Reserve	88	47	20	21
Johns Hopkins	80	40	16	24

Microbiology

In table 11, total hours of microbiology represent the cumulative figure for the subdivisions that appear in the table The range and median time allotments for the subdivisions are as follows bacteriology—maximum 253, median 151, and minimum 0 hours, virology—209, 21, and 0 hours, mycology—195, 8, and 0 hours, parasitology—162, 36, and 0 hours In those instances where 0 hours are assigned to subdivisions of microbiology, undoubtedly teaching in such subdivisions is conducted under other subject titles, i e, bacteriology, public health and preventive medicine, clinical pathology, etc Hours devoted to various teaching methods are the total for the over-all discipline computed from data given for each subdivision These computations were made only for the schools listed in the table, and the range and median for this data are not given

TABLE 11 —*Curriculum Structure in Microbiology*

School	Total Hours	Lecture Hours	Seminar or Conference Hours	Laboratory or Demonstration Hours	Bacteriology	Virol	Mycology	Parasit
Maximum Group								
Rochester	327	77	14	236	179	48	20	80
Miami	315	85	20	210	180	25	25	85
Howard	306	90	0	216	144	0	0	162
Indiana	301	81	22	198	0	196	0	105
Puerto Rico	294	78	47	169	163	40	21	70
Median Group								
U of Virginia	232	60	0	172	150	28	19	35
Southwestern	228	75	27	126	151	33	14	30
Texas	224	80	0	144	0	152	0	72
Woman's Medical	220	64	21	135	154	31	11	24
Minnesota	218	57	16	145	148	46	24	0
Minimum Group								
Chicago Medical	165	55	0	110	102	21	12	30
Creighton	160	96	0	64	160	0	0	0
U of Chicago	156	12	0	144	0	108	0	48
Western Reserve	145	46	8	91	145	0	0	0
Wisconsin	144	48	0	96	144	0	0	0

Pathology

The total hours given in table 12 consists of hours assigned to both general and special pathology It should be noted that 27 schools listed 0 hours under special pathology In these instances, presumably the time allotted to special pathology is included in that given under general pathology Ten of the schools listed in the table fall into this category The maximum hours assigned to general pathology are 441, the median 233, and the minimum 32 Similar figures for special pathology are 436, 68, and 0 hours

TABLE 12 —*Curriculum Structure in Pathology*

School	Total Hours	Lecture Hours	Seminar or Conference Hours	Laboratory or Demonstration Hours	Hours General	Hours Special
Maximum Group						
Hahnemann	462	154	154	154	308	154
Columbia	440	99	88	253	407	33
Duke	436	63	46	327	436	0
Indiana	431	81	86	264	431	0
Howard	414	108	90	216	180	234
Median Group						
Vanderbilt	315	76	0	239	315	0
Arkansas	312	78	0	234	312	0
Michigan	312	128	32	152	312	0
Med Coll Virginia	309	99	0	210	309	0
Western Reserve	308	77	38	193	238	70
Minimum Group						
Geo Washington	220	60	40	120	220	0
Oregon	198	66	0	132	198	0
Buffalo	153	51	0	102	153	0
Yale	150	28	0	122	150	0
U of Chicago	108	0	0	108	36	72

It is not the purpose of this study to undertake an interpretative analysis of the data, for such an interpretation would require full knowledge of the total required curriculum and teaching methodology of each institution The material is presented for whatever value it may be to those medical schools in the process of curriculum studies The tremendous variation from school to school in time allocated to any given subject is apparent in the tables but is even more vividly portrayed in table 13, in which the maximum, median, and minimum hourly assignments are grouped together for the six disciplines under consideration

The tables on curricular characteristics also bring out the great variation with which the major teaching methods are employed It is somewhat surprising to note the relatively low incidence of utilization of seminars or conferences that allow for active student participation This teaching method is most frequently used in pharmacology (48 schools) and least often used in anatomy (21 schools)

TEACHING RESPONSIBILITIES FOR OTHER THAN UNDERGRADUATE MEDICAL STUDENTS

In order to assist medical schools in interpreting their over-all teaching responsibilities, for the past several years these activities have been presented in this report in tabular form This material has been widely used both locally and nationally to portray to university authorities, legislative bodies, the profession, and the public the magnitude of the educational activity of the medical schools over and above their primary function in undergraduate medical education

TABLE 13 —*Range in Hour Assignments for Basic Medical Sciences*

Subject	Maximum Hours	Median Hours	Minimum Hours
Anatomy	770	603	408
Biochemistry	338	229	141
Physiology	440	256	100
Microanatomy	327	224	144
Pharmacology	358	165	80
Pathology	462	312	108
Total Hours	2,695	1,759	981

In the questionnaire sent to medical schools to collect information for this year's report, medical school officials were asked, as in previous years, to indicate the number of physicians attending postgraduate courses Because of a special study, a separate questionnaire dealing only with postgraduate activities was mailed to medical schools Included in this material was a question also asking for the number of physicians in postgraduate courses Responses to the same question in these two questionnaires on the part of the same medical schools, frequently over the signature of the same administrative officer of the school, were so frequently and so totally disparate as to indicate their lack of validity

Invalid data are not only useless but also misleading Rather than attempt to compromise with validity or completeness, this table has been omitted in this current report It is hoped that accurate data can be obtained in the future, so that this important information can again be made generally available

TABLE 14 —*Opportunities and Enrollments for Graduate Work in Basic Medical Sciences*

	Enrollment for Masters Degree							Enrollment for Ph D Degree							Other Courses Offered						
	Anatomy	Biochemistry	Biophysics	Microbiology	Pathology	Pharmacology	Physiology	Anatomy	Biochemistry	Biophysics	Microbiology	Pathology	Pharmacology	Physiology	Anatomy	Biochemistry	Biophysics	Microbiology	Pathology	Pharmacology	Physiology
Medical College of Alabama	3	6			2	2	2		7				2	2	X						
University of Arkansas		5					2		1				1	1	X						
College of Medical Evangelists		3		1			3													✓	
University of Southern California	5	13		2			4		24		1		5	9		X					
Stanford University				9			1	2			12		3	8							
University of California San Francisco	2							1	17					3							
University of California Los Angeles			1			3	4	7	4	3				5							
University of Colorado	2	1		5				4	1	2	7		4	7							
Yale University								2	11		14		2	2							
Georgetown University		3		1	2	1	1	1	1		5		5	3							
George Washington University	3	27		16		3	5	3	11		23		9	10							
Howard University						1	2														
University of Miami	1	1		3		1	1														
Emory University	3			2				1	5		1		3								X
Northwestern University	Thirty candidates—subject not specified							Twenty three Ph D candidates subject not specified													
Stritch School of Medicine	10	8		6		6	2		4		2		8	2							
University of Chicago	5	4		10		1	5	6	20		14		14	6							
University of Illinois	3	7		9	4	6	12	4	12		5	1	9	8							
Indiana University								2			3										
State University of Iowa	31	12		10		4	6	5	3		2			2							
University of Kansas	7			5			4	8	9		1		1	3							
University of Louisville	1	6		6			1														
Louisiana State University		6		4										1							
Tulane University	2	4		4		1	3	2	9		8										
Johns Hopkins University									5					4							
University of Maryland								2	3		1		2	1							
Boston University		11		2	3	2			7		4	1	4	5							
Harvard Medical School		1		1					26		5	1	3	4	✓						
Tufts University									6				5	3							
University of Michigan	One hundred sixty nine candidates—subject not specified							One hundred forty seven candidates—subject not specified													
Wayne State University		1		1			4†	2	9		1			2†							
University of Minnesota	20	22	4	25	15	14	18														
University of Mississippi							1							1							
St Louis University	6	6					1	5	9		1			2						X	
University of Missouri	4			4			2†	1	1					14							
Washington University	1	1				1		4	3		2	2	3								
Creighton University		2		1			1														
University of Nebraska	4	2					7†		1					3†				X	X		
Albany Medical College	2	3		3	1	2															X
Albert Einstein University															✓	X		X	X	✓	X
University of Buffalo		3		2		2	4	1	1		1		1						X		
Columbia University								2	12		6		3	6							
Cornell University								1	3		2		1	5							
New York University	3	2		1				5	14		3	2									
State University of New York Syracuse									1		1		2	1							
University of Rochester		3	13	9		5	3	3	12	16	5	2	10	8							
University of North Carolina				9			1		5		2			3							
Duke University	2			1			4†	3	11		8			3†							
Bowman Gray School of Medicine																✓		X			/
University of North Dakota	1	3		2			1†		2					1†							
University of Cincinnati									2		2		4	3	X				X		
Western Reserve University	1	7		1	2		3	3	17		8	1		3							
Ohio State University	4	11		10	6		4	8	4		4	1		3							
University of Oklahoma	1	3		1	1	2	3	2	7		6	1	3	1						X	
University of Oregon	8	6			1		2											X			
Hahnemann Medical College		2		2		3					1		1		X				X		X
Jefferson Medical College				2		1	2				2		5	5							
Temple University	2	2				2	8				2			2							
University of Pennsylvania				15			4	8	13		31	1	2	14							
Woman's Medical College															X	X		X	/	X	X
University of Pittsburgh		30							20												
Medical College of South Carolina	1						1		2				8								
University of South Dakota	1	1		6			2†	1													
University of Tennessee		2				2	1	1	8			4	2	7							
Meharry Medical College																X		X			X
Vanderbilt University		2		2					7		2		3	2							
Southwestern Medical School				2						1	8					X					
University of Texas	5	3		2			1	1	2				3	1					X		
Baylor University	6	4		6	1		1	2	3		1			1						✓	
University of Utah	3	8		7		2		3	4		7		2								
University of Vermont		2		2	1	1	1								X						
University of Virginia							1				8			1	✓	X				X	
Medical College of Virginia	1	1											9					X	X		
University of Washington		3		13		5	3	1	22		16		3	9							
West Virginia University		3		5																	
University of Wisconsin	2							2	2		10	5	2	6							
Marquette University	2	2		4	4		8														
Total	153	251	18	237	43	73	145	109	382	22	238	22	142	153							

An unknown number of these may be for doctoral degrees since level of work was not specified

† Includes Pharmacology

OPPORTUNITIES AND ENROLLMENTS FOR GRADUATE WORK IN BASIC SCIENCES

The expanding demand for medical services and the increasing thirst for new knowledge to make such service more effective are necessarily dependent on the availability of personnel for teaching and investigation in medicine Since it is generally agreed that the most crucial personnel need is in the basic science area, data were collected from the medical schools regarding current enrollment of graduate students in the basic science disciplines and regarding similar educational opportunities for which there is no present enrollment This material is presented in table 14

All but 6 of the 83 medical schools now in operation offer work for advanced degrees in the basic sciences at either the masters or the doctoral levels or both Of the 77 schools offering such graduate study, all but 4 have students enrolled in one or more of the disciplines Ten schools have enrollments only for masters degrees, and 10 have enrollments only for the doctoral degree There are 1,119 students working toward the masters degree and 1,292 toward the doctoral degree At both levels, most enrollments are in biochemistry, with microbiology having the next highest number

Information was also collected as to those schools that offer advanced degrees in the clinical sciences This material does not appear in this report, since the granting of degrees in clinical fields is largely a matter of policy determined by each school Considerable information regarding clinical graduate education is easily accessible in the annual report by the Council on internships and residencies, which will appear this year in the Sept 22 issue of THE JOURNAL Upon request, information will be furnished concerning those schools that offer advanced degrees in clinical fields and the specific subjects involved

MEDICAL RESEARCH, MEDICAL EDUCATION, AND MEDICAL PRACTICE

The interdependence and interrelationship between research, education, and practice in medicine have long been acknowledged In the past perhaps this acknowledgment has been of a superficial nature, taking expression in the stated objectives of medical schools and occasional statements or presentations from individuals engaged in one or more of these areas of activity Much concern has been voiced as to fundamental problems involving personnel, finances, facilities, and other more indirect forces, such as advancing knowledge in science applicable to medicine, changing social structures, and aging populations, with their differing demands and effects For the most part, however, this concern has appeared as a reflection of the preoccupation of individual segments of these interdependent areas

There can be no dissent that the research of yesterday must become the education of today if it is to develop into the practice of tomorrow Yet in medicine, there has been little probing of the significant implications of this necessary orderly progression All too often individuals primarily engaged in one activity have little concern with or knowledge of the problems, challenges, and satisfactions of another Unfortunately, on occasion, there seems to be greater interest in matters that separate rather than in those stronger and more enduring bonds that join colleagues in these interwoven activities

The American Foundation in a recent two volume study entitled "Medical Research A Midcentury Survey"[7] presents a very thoughtful exploration of some facets of this problem It is interesting and pertinent to note that this study resulted from an earlier interest in social and economic aspects of medical care This earlier study convinced the foundation that social and economic problems of medical care could be brought to a permanent solution only after solution of even more challenging problems in medical education, which in turn must be considered in relation to "the broadening and deepening of fundamental research directed not only toward diagnosis and treatment of specific 'diseases' but also toward understanding of the total living organism " The American Foundation believes that "the heart of the matter is the need of supporting and expanding research in medicine as a life science involving the whole field of biology and the contributions, in theory as well as in instrumentation, of chemistry, physics, mathematics

The most urgent of present national needs in the medical field is thus conceived to be expansion and improvement of medical education integrally related to research and progressive improvement of medical practice, steadily lessening the empirical nature of applications of new knowledge to medicine "

One cannot logically dispute the observation that medicine is in itself not a science but rather a collection of the applications of chemistry, physics, and mathematics in biology, for which one must view health and disease in terms of ordered or disordered metabolism Future knowledge must come not only from study of the content and structure of metabolic components, but also from exploration of the physical factors that control organization of these components in the cell and its environment Thus, though there is no medical science, medicine does provide the "commons-hall" for all sciences

Has the pattern of medical education and practice properly taken into account this concept of medical research? The American Foundation's viewpoint is that "Wherever fundamental research exists, no doubt would be expressed that medicine—meaning medical research, medical education, medical practice—is of course rooted in biology, or that the development of biological and medical research is increasingly influenced by the contributions of chemistry and physics (and atomic energy), mathematics This truth is as yet, however, only dimly reflected in the structure of medical education, or in the point of view of medical practice "

The protean nature of research in medicine largely accounts for the fact that so much of it takes place in a university setting where a wide spectrum of scientific disciplines are represented This then inevitably provides the proper setting for medical education, but, without maximum utilization of the talents, attitudes, and facilities available in the university for education in medicine, the setting is not being properly used If medical education does not adopt a pattern suitably related to research, the products of that education cannot be expected to take into medical practice the desired viewpoints

The ready availability of financial support for applied research as compared to support for fundamental research has brought about considerable discussion of the need for an equitable balance between the two, lest the wellspring of knowledge for applied research run dry. Although this has been primarily considered as a problem important to research, it also has many significant implications in medical education and ultimately in medical practice. In recent years, serious concern has been expressed in regard to the financial needs of medical schools if they are to meet their educational obligations. It seems likely that there has been greater support of research than education and any such imbalance cannot long be maintained without serious consequences. Shannon[8] has recently discussed this problem and concluded "that in the long run, the best approach to either private or public support of medical research may not be to aid research solely by direct support for this function. Rather, it may be wise to strengthen the medical school and universities totally and quite directly, leaving to them more independence in arriving at decisions as to the relative emphasis to be given to the research and teaching functions. If such an approach were followed, funds for general construction would be provided, rather than funds for research construction alone. Funds for general operating expences would be provided as well as funds for fellowships, for current support of research, or for other limited objectives." These and many similar matters are of vital importance to the three fields of research, education, and practice in medicine.

CONCLUSIONS AND RECOMMENDATIONS OF COUNCIL ON MEDICAL SERVICE RELATING TO PRIVATE PRACTICE OF CLINICAL FACULTY PERSONNEL AND ADOPTION BY HOUSE OF DELEGATES OF THE REPORT, JUNE, 14, 1956

In the 1955 Annual Report on Medical Education in the United States and Canada, attention was drawn to the problems that had developed in some areas in regard to the activities of full-time clinical faculty personnel in the private practice of medicine. Difficulties and misunderstandings existed in connection with the utilization and interpretation of the word "geographic" as applied to some clinical faculty personnel otherwise designated "full time." The manner of collection and utilization of fees for professional services rendered and the implications of the corporate practice of medicine were matters of concern to the profession in some instances. It was obvious that there had been little or no liaison between some medical schools and the medical profession in certain situations. In a few of the tax-supported institutions, there were wide areas of disagreement, misunderstanding, and even hostility between the local profession and the medical school over arrangements between the institution and its clinical faculty personnel. These problems had assumed particular importance in connection with the developmental programs of some of the new medical schools and in the expansion of full-time clinical faculty personnel in some of the long-established institutions.

This problem area was given emphasis by the introduction of the Culpepper resolution at the meeting of the House of Delegates of the American Medical Association in Miami in December, 1954. This resolution was directed against "the practice of medicine" by personnel of tax-supported medical schools and requested the establishment of a definite policy on the part of the American Medical Association in regard to such matters. The Council on Medical Service of the American Medical Association was subsequently requested to conduct an inquiry into the practices of medical schools in the employment of clinical faculty personnel.

An advisory committee with representation from the Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the American Hospital Association was appointed by the Council on Medical Service. This committee participated in the formulation of a questionnaire designed to obtain comprehensive information from the medical schools. The Council on Medical Service designed questionnaires for local and state medical societies in areas where medical schools are located. All answers to the questionnaires were analyzed and studied by the Committee on Medical and Related Facilities of the Council on Medical Service. This committee conducted hearings at which representatives of medical schools and medical societies were invited to present their respective points of view.

The problems centered around the area of clinical full-time faculty appointments were felt to be of such importance that the Council on Medical Education and Hospitals co-sponsored with the Council on Medical Service a half-day program devoted to these matters at the Annual Congress on Medical Education and Licensure in February, 1956. The Council on Medical Service reported on the initial findings obtained through the three sets of questionnaires at that time. Representatives of the medical profession and of the medical schools presented statements interpreting their respective points of view, and open discussion followed.

In the interval between the Congress on Medical Education and Licensure in February and the meeting of the American Medical Association in June, 1956, the Committee on Medical and Related Facilities completed its study and the Council on Medical Service prepared its report and recommendations for the House of Delegates of the American Medical Association. During this interval, a meeting of the Advisory Committee was held to review the report and recommendations. Because of conflicting commitments, members of the Advisory Committee representing the Association of American Medical Colleges were unable to attend this meeting.

The Committee on Medical and Related Facilities devoted a great deal of time and effort to the study of data received from the medical schools and from local and state medical societies and to a sincere analysis of the over-all problems presented. There was considerable variation in the interpretation of the degree and significance of the problem on the part of some of the institutions and professional societies. Much misunderstanding and disagreement was centered around the use of the term "geographic" as applied to clinical faculty who were indicated to be "full time" but who were paid basic salaries by the respective institutions, which n augment income through the means of private practice One of the objectives of the committee, therefore, became centered around the definition and interpretation of terminology utilized in designating the status of clinical faculty personnel The committee, realizing the importance and essential nature of medical education and the fundamental role played by medical schools, endeavored to make the study, the report, and their recommendations thoroughly objective

At the June, 1956, meeting of the House of Delegates of the American Medical Association, the Council on Medical Service presented the conclusions and recommendations reached during the study they had pursued over a period of 18 months, with the suggestion that action be deferred for six months to permit adequate study during the intervening period The report of the Council on Medical Service was referred to the Reference Committee on Insurance and Medical Service, which, after conducting its hearings, recommended the report to the House of Delegates for immediate adoption Subsequently, the House of Delegates voted the adoption of the "Conclusions and Recommendations" of the Council on Medical Service in regard to Private Practice by Medical School Faculty Members Because of the basic importance of this matter and the values inherent in its solution, these "Conclusions and Recommendations" as adopted by the House of Delegates are presented in full for the information of those who review this annual report on medical education

Conclusions and Recommendations

In this survey it was found that to a varying degree controversy exists between medical schools and the physicians in private practice, as is alleged in the Culpepper resolution, and that, when the replies of the deans and the officers of the medical associations are considered and compared, there are differences of opinion as to the extent of this disagreement This main controversy arises out of the question of the medical school or its full time faculty entering into the private practice of medicine

Historically, we find ourselves somewhat in the same position that we were in prior to 1913 at which time the concept of a full time faculty was developed, primarily to improve the quality of medical education, but also to avoid conflicts between the local medical profession and the faculties of medical schools However, presently the concept of the "absolute" full time teacher is being modified because of economic and other pressures As a result there are sharp differences of opinion on the matter of private practice between the local profession and the medical schools These differences have been brought to the fore because of such factors as the establishment of new medical schools, the extension of medical school curricula from two to four years, and the construction of new medical school hospitals

It is evident from all facts and data available to the Council that most, if not all, medical schools permit the so-called full time faculty members to engage in private practice In various areas, this has been a common procedure for many years, and while differences of opinion between the practicing physicians and the medical schools have arisen, many of these have apparently been mutually resolved

COMPENSATION OF TEACHERS

The Council is fully cognizant that many of the methods of compensating teachers of medicine leave much to be desired and some are to be condemned entirely because of the fact that the teachers may be exploited by the institutions they serve Everything considered, the Council believes that some fundamental principles should be formulated in regard to these problems and accordingly presents the following conclusions and recommendations in the hope that they will assist medical societies and medical schools in developing programs which will be satisfactory to all concerned—the students, the teachers, and the practicing profession, so that in the end the public may receive the best possible medical care

DEFINITIONS

A great deal of confusion exists in regard to the present terminology used by medical schools to describe the status of their clinical faculty members It is, therefore, recommended that the Council on Medical Education and Hospitals and the Association of American Medical Colleges adopt the following uniform definitions and that both take it upon themselves to urge all medical schools to adopt these definitions Such action it is believed will make for better understanding and pave the way for amicable settlement of present conflicts and opinions

The full time faculty member is one who devotes all his time to the service of the medical school and receives all his professional compensation from a salary paid by the medical school

Part time faculty members receive a salary from the medical school, but they may be divided into two groups

A Physicians in the first group have medical school service as a major interest and usually conduct their private practice from facilities of the medical school (This group includes many physicians called "absolute full time" and most physicians called "geographical full time" under present medical school terminology)

B Physicians in the second group have private practice as their major interest, utilize medical school facilities for teaching, and conduct their private practice from their own offices elsewhere

A volunteer faculty member is a member of the faculty who receives no salary for his services to the medical school

LIAISON

The Council has found that much of the present conflict in opinions has resulted from a failure in liaison between the practicing profession and the medical schools In most instances of present conflict the profession and the schools worked hand in hand to build a good medical school and erect a teaching hospital Yet, on completion of such joint endeavors, all too frequently the initial spirit of cooperation and working liaison seems to have disappeared In view of this, it is recommended that adequate liaison be developed and maintained between each county medical society and any medical school or schools in its area and between each state medical association and any medical schools in the state Such liaison should be the primary function of some committee of the state or county medical society, and methods should be developed so as to maintain communication between medical society committees within each state

Medical society activity alone will not serve to maintain proper liaison Accordingly, it is also recommended that the Council on Medical Education and Hospitals and the Association of American Medical Colleges urge all medical schools to assist and work with medical societies and associations in developing such liaison and urge them to confer with these committees whenever problems, questions, or policies arise that may concern private practice or in which the medical profession may be of assistance to the schools

In this study, it was evident that a large percentage of the medical school faculties is still in the part time and volunteer categories Complaints were made by deans that in some instances these men failed to fulfill their obligations to the school Medical societies and associations complained that sufficient recognition was not given to these men for their services, mainly in the matter of policy determination The Council recommends that when appointed, the services of volunteer and part time men should be properly utilized and recognized by the medical school and these men should serve the school to the best of their ability

It is further recommended that on request of a medical society or a medical school, the American Medical Association's Board of Trustees establish, in cooperation with the Association of American Medical Colleges, a special committee whose function would be to investigate areas where there is friction between the medical school and the profession Such a committee might (1) assure the continuation of liaison, (2) see to it that all data and facts are made available to all concerned and (3) seek to resolve differences of opinion

AVAILABILITY OF PATIENTS FOR TEACHING PURPOSES

It is evident to the Council that medical service and medical education have become quite complex Economic factors, such as voluntary health insurance, extension of welfare benefits, increasing costs of hospitalization, etc., have created new facets to the problem of medical education, and especially have lessened the volume of indigent and medically indigent patients Therefore, the Council recommends that all patients treated in medical school facilities be available for teaching purposes

FULL TIME FACULTY

It is evident from the information available to the Council that at the present time in the opinion of both the medical schools and the medical societies replying to the questionnaire income from private practice is necessary to attract and keep some portion of the clinical faculty Our survey indicates that this seems to be more true in the case of private schools than in government schools

It is the Council s belief that a nucleus of "full time" clinical faculty members in the medical school is necessary The Council believes that as a general rule, the full time" clinical faculty members as herein defined, should *not be permitted* private practice but should be paid an adequate salary *by the medical* school Exceptions because of legal or local *conditions may* be necessary The number and types of such "full time faculty members as are deemed necessary rest with each school, but in any event their salaries should be adequate and attractive enough to hold capable teachers

TABLE 15 —*Schools Students and Graduates in the Medical and Basic Sciences Schools in the United States, 1931-1956*

Year	Schools	First Yr	Second Yr	Third Yr	Fourth Yr	Total	Graduates
1930-1931	76	6 456	5,535	5 050	4,905	21,982	4 735
1931 1932	6	6,260	5 462	4,932	4,895	22 135	4,936
1932 1933	77	6 426	5 479	5 017	4,948	22,466	4,895
1933-1934	77	6 457	5,571	4,955	4,937	22,799	5 035
1934 1935	77	6,356	5,642	5 142	4,945	22 8[illegible]	5,101
1935-1936	77	6,605	5 455	5,239	5 020	22,564	5,183
1936-1937	77	5,910	5 369	5 140	5 157	22 095	5,377
1937 1938	77	5 791	5,225	4,985	5 089	21,587	5 194
1938-1939	77	5 764	5 160	4,947	4,921	21,302	5 089
1939-1940	77	5 794	5 177	4,971	4,894	21,271	5 097
1940-1941	77	5,837	5,254	4,909	4,849	21,379	5,275
1941 1942	77	6,218	5 406	5 087	4,912	22,031	5 163
1942 1943	70	*6 425*	*5,826*	*5,275*	*5 100*	*22,631*	5,223
1943-1944	77	6,561	6,071	5 640	5,257	23,529	5 134
1944 (2nd Session)	77	6,548	6 140	6 054	5 794	24,666	5 169
1944 1945	77	6,523	5,979	5 700	5,825	24 028	5,136
1945-1946	77	6 060	5 750	5 751	[illegible]	23,216	5,826
1946-1947	77	6,564	5,575	5 767	5,594	23,900	6,389
1947 1948	77	6 487	5 758	5,154	5,240	22 739	5,543
1948-1949	78	*6,688*	6,194	5 702	5 084	23 670	5 094
1949-1950	79	7 042	*6,344*	*6 079*	[illegible]	25 103	5,553
1950-1951	79	7 177	6 690	6,205	[illegible]	[illegible]	6 135
1951 1952	79	7 436	6,864	6,577	6 195	27 076	6 080
1952 1953	79	7 425	7,063	6 725	6 475	27 688	*6,668*
1953-1954	80	7 449	7 068	6,953	6 727	28,227	6,861
1954 1955	81	7,576	7 104	6,957	6,946	28,583	6,977
1955-1956	8	7,686	7 174	6,893	6,8[illegible]	28,639	6,845
Including data for schools developing new programs which have not yet been approved would increase the totals by the following figures							
1955-1956	83	7 742	7,174	6,946	[illegible]	28 745	6,845

PART TIME FACULTY

Over and beyond this nucleus of "full time faculty members every school has a large number of *clinical teachers* who are and should be classified as "part time " *These are so classified* in the revised definitions recommended by the Council and include many *physicians* now classified under medical school terminology as absolute full time *and most of these* classified as geographical full time

There seems to be no question concerning *the privilege of* private practice by "part time" faculty members There are, however, two basic *questions* to be kept in mind. The first is What portion of the physician s time should be spent in teaching and what portion in private practice? *The second* question is Where should the physician be permitted his private *practice*?

In regard to the first question, it is evident that even now all schools make some effort to limit private practice privileges as shown in the report on the survey itself The extent to which these limitations are successful and to which they are actually providing a dividing line between teaching responsibility and private practice could not be accurately determined However, the Council believes it is a primary responsibility of the administrators of medical schools to exercise adequate controls over the extent of private practice so as to maintain a proper relationship between teaching responsibilities and private practice

The second question having to do with the place of practice seems to be the primary object of criticism in a number of areas particularly in relation to government supported schools Here the teaching physician is accused of using tax-supported facilities to assist him in developing an income from private practice The Council believes that all "part time" faculty members should have the privilege of private practice Such a privilege, however, should carry with it certain restrictions similar to those now utilized by most schools As mentioned before, such restrictions should begin with a limitation as to the "amount of time" the physician may devote to private practice so as not to jeopardize the primary educational function of the medical school or of the individual teacher The Council believes that charges should be made where possible under the existing laws of the state, to the physician for all facilities and personnel involved in his private practice pro-rated in accord with the use of such facilities in his private practice

PUBLICITY

Considerable criticism has come to the attention of the Council against local publicity given or sought by medical schools with reference to the work of individual staff members We recommend that publicity emanating from a medical school should be in good taste and of a type which has the approval of the general medical community of that area

CULPEPPER RESOLUTION

Finally the Council would like to refer to the resolution introduced into the House of Delegates at the Clinical Session in 1954 by J P Culpepper Jr of Mississippi The intent of this resolution would seem to be that the principle involved in a state-supported medical school using private practice as a source of funds for the general operation of a school or its hospital is contrary to medical ethics and is in effect, the corporate practice of medicine and state socialism We recommend that it be the policy of the American Medical Association that funds received from the private practice of medicine by salaried members of the clinical faculty of the medical school or hospital should not accrue to the general budget of the institution and that the initial disposition of fees for medical service from paying patients should be under the direct control of the doctor or doctors rendering the service

It is the firm policy of the American Medical Association, and in this policy the Council heartily concurs that only a licensed doctor of medicine should practice medicine It is not in the public or professional interest for a third party to derive a profit from payment received for medical services nor is it in the public or professional interest for a third party to intervene in the physician-patient relationship

Nothing in this report is meant to condone the corporate practice of medicine or policies which result in the diversion of physician s fees to a corporation or governmental agency *

MEDICAL STUDENTS
ENROLLMENTS

For the seventh consecutive year, the number of students enrolled in approved medical schools in the United States has established a new record Complete enrollment data for the individual schools are shown in table 1 Comparative data for this and preceding years are given in table 15 In order to present a true picture of medical education in the United States, table 1 and table 15 contain additions in the appropriate columns as shown of the students in the de-

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*Added by the House of Delegates

TABLE 16—*Geographical Source of*

	SCHOOL	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 Dist of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana
1	Medical College of Alabama	81																
2	University of Arkansas			93														
3	College of Medical Evangelists		1		76		1			1							1	
4	University of Southern California School of Medicine				60	1							1				1	
5	Stanford University School of Medicine		2		47	1							1					
6	University of California School of Medicine, San Francisco		1		76													
7	University of California School of Medicine Los Angeles		2		48													
8	University of Colorado School of Medicine		3			70												
9	Yale University School of Medicine				3		16			1					1		1	
10	Georgetown University School of Medicine						5		6	3			1	1				
11	George Washington University School of Medicine	1			11		4	1	14	2		1				1		
12	Howard University College of Medicine	4							12	2			2	1				2
13	University of Miami School of Medicine									73								
14	Emory University School of Medicine	3			1				1	23	36							1
15	Medical College of Georgia										100							
16	Chicago Medical School				1								3					
17	Northwestern University Medical School		2		9	1				1		2	51	4	1	2	2	
18	Stritch School of Medicine of Loyola University		1		3								56	1	1			
19	University of Chicago, The School of Medicine				3	1						1	29	3	1			
20	University of Illinois College of Medicine				1					1			161					
21	Indiana University School of Medicine												2	148				
22	State University of Iowa College of Medicine												3		112			
23	University of Kansas School of Medicine				2							1				85		
24	University of Louisville School of Medicine													5			88	
25	Louisiana State University School of Medicine																	125
26	Tulane University of Louisiana School of Medicine	9	1	3	1		1			20	3		2	1		1	3	35
27	Johns Hopkins University School of Medicine	1	1		6		4		1	2		1	1	1	1	1		
28	University of Maryland School of Medicine								4	2	1			1				
29	Boston University School of Medicine				1		4		1					1				
30	Harvard Medical School	2		2	3	1	5	1	2	2			4	1	3		1	
31	Tufts University School of Medicine						12											
32	University of Michigan Medical School				1					1			3	2				
33	Wayne State University College of Medicine																	
34	University of Minnesota Medical School												1		1			1
35	University of Mississippi School of Medicine																	
36	University of Missouri School of Medicine																	
37	St Louis University School of Medicine	1		1	6	1	1		1		1		5	1			1	1
38	Washington University School of Medicine	1	1		8	2				2		1	7	2	3			
39	Creighton University School of Medicine				11	3						2	3		7	1		
40	University of Nebraska College of Medicine				1										3			
41	Dartmouth Medical School												2					
42	Albany Medical College						2			1			1					
43	University of Buffalo School of Medicine				1		1						1					
44	Columbia University College of Physicians and Surgeons	1			1		5		3		1			1			3	
45	Cornell University Medical College				1		4				3		1				1	
46	New York Medical College, Flower and Fifth Avenue Hospitals						12			1				1				
47	New York University College of Medicine				1		3			1								
48	State University of New York College of Medicine New York City																	
49	State University of New York College of Medicine, Syracuse																	
50	University of Rochester School of Medicine and Dentistry				3		3						2		1			
51	University of North Carolina School of Medicine																	
52	Duke University School of Medicine	1			2		2		1	13	2		3	1				1
53	Bowman Gray School of Medicine of Wake Forest College				1				1	4			1				3	
54	University of North Dakota School of Medicine				2													
55	University of Cincinnati College of Medicine				2					1				4			10	
56	Western Reserve University School of Medicine		1		8				2	1			3	1			2	
57	Ohio State University College of Medicine																	
58	University of Oklahoma School of Medicine				1													
59	University of Oregon Medical School				2							4						
60	Hahnemann Medical College and Hospital of Philadelphia	1			2			2		1			1					
61	Jefferson Medical College of Philadelphia				1		2			1			1					1
62	Temple University School of Medicine				1			1								1		
63	University of Pennsylvania School of Medicine				3		2	3		4			2				1	
64	Woman's Medical College of Pennsylvania			1	6		1						3	1				
65	University of Pittsburgh School of Medicine																	
66	Medical College of South Carolina																	
67	University of South Dakota School of Medical Sciences				2								2		1			
68	University of Tennessee College of Medicine	4	2	6						5	1		1				4	
69	Meharry Medical College	5			3				1	6	10		3	3				
70	Vanderbilt University School of Medicine	4		2	1					2			1	1			9	
71	University of Texas Southwestern Medical School																	
72	University of Texas Medical Branch																	
73	Baylor University College of Medicine	1		1	4	2			1	2		2	2	1			1	
74	University of Utah School of Medicine		4									3						
75	University of Vermont College of Medicine						8											
76	University of Virginia Department of Medicine				1			2			1						1	
77	Medical College of Virginia									1								1
78	University of Washington School of Medicine				1							4						
79	West Virginia University School of Medicine																	
80	University of Wisconsin Medical School																	
81	Marquette University School of Medicine				5		1						6	1	1			
82	University of Puerto Rico School of Medicine																	
	Totals	120	22	109	434	83	99	10	51	180	159	22	378	188	137	92	133	168
83	University of Alberta Faculty of Medicine																	
84	University of British Columbia School of Medicine																	
85	University of Manitoba Faculty of Medicine																	
86	Dalhousie University Faculty of Medicine																	
87	Queen's University Faculty of Medicine																	
88	University of Ottawa Faculty of Medicine												5					
89	University of Western Ontario Faculty of Medicine																	
90	University of Toronto Faculty of Medicine																	
91	McGill University Faculty of Medicine				8		2						1		1		1	
92	University of Montreal Faculty of Medicine																	
93	Laval University Faculty of Medicine																	
94	University of Saskatchewan College of Medicine												1					
	Totals	—	—	—	8	—	2	—	—	—	—	—	7	—	1	—	1	—
	Grand totals	120	22	109	442	83	101	10	51	180	159	22	385	188	138	92	134	168
	Marginal No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

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* Figures are for students in beginning premedical year

18 Maine	19 Maryland	20 Massachusetts	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 U. S. Territories and Possessions	51 Canada	52 Foreign	53 Home State	54 Out of State	55 Totals
23	100	233	[illegible]	[illegible]	113	120	[illegible]	101	2	28	[illegible]	12	[illegible]	[illegible]	39	[illegible]	[illegible]	[illegible]	563	[illegible]	102	41	[illegible]	[illegible]	[illegible]	21	[illegible]	[illegible]	69	[illegible]	13	[illegible]	914	[illegible]	6,209	[illegible]	8,659

veloping but not yet approved programs of the Albert Einstein School of Medicine and the third years of the Schools of Medicine of the University of Mississippi and the University of Missouri

It should be noted that the figure in table 1 depicting total enrollment for the past two years included the special and part-time students, whereas before 1954-1955 only full-time students were shown If the students enrolled in medical schools as special and part-time students were not included in either year, the present enrollment would still be slightly increased compared with last year The addition of a total of 198 students by the newly approved University of Miami School of Medicine more than compensated for generally smaller classes The median total enrollment in 1955-1956 was 335, compared to 338 in the preceding year, and the average total enrollment was 370 students, as compared with 375 in 1954-1955

Five schools had a total enrollment each of more than 600 The University of Tennessee led in this respect with a total enrollment of 781 The University of Tennessee and the University of Michigan admitted more than 200 students to their entering classes (217 and 206 respectively) There were again this year six additional schools with first-year enrollments of 150 or more students

The entering class was the largest total ever enrolled (table 1) Two-thirds of this increase occurred by the addition of the class at the University of Miami School of Medicine, as was anticipated last year

nly seven schools changed their entering class size y more than 5%, and the largest change was an almost 13% increase at the University of Mississippi coincidental to its development into a four-year school The University of Maryland School of Medicine had a 9% increase (88 to 96) and Howard had an 8% increase compared with last year The median first-year class for the four-year schools consisted of 87 students, and the average had 97 students The median total enrollment was 335 and the average was 370 students

Enrollment data for approved Canadian medical schools are given in table 2 Comparison of this with similar data for last year reveals a small increase in total enrollment and a larger increase, of 7%, in the size of the entering class The largest changes in entering-class size occurred at the University of Toronto (increased 24%), Queen's (increased 14%), and the University of Ottawa, which increased its entering class by 11% Those students enrolled in the premedical year and required intern year are not included in the total enrollment in table 2 nor in the comparisons made above in the text

It is pertinent to note that 78 United States citizens were enrolled in the first medical year in Canadian schools as compared with five Canadian citizens enrolled in the first-year class of United States medical schools (table 16) More detailed information in regard to this can be found in the next section of this report

GEOGRAPHICAL SOURCE OF ENTERING STUDENTS

Information as to the state of permanent residence for entering students was derived from the enrollment data submitted by the medical schools Table 16 presents the residence of students at the time of their enrollment in the approved medical schools in the United States and Canada

This table indicates that 40% of all first-year students in the United States came from six states (New York, Pennsylvania, California, Ohio, Illinois, and Texas) It is interesting to note that the first-year enrollment of all the approved medical schools in these states represented 42% of the total enrollment for the nation and that almost 38% of all United States medical schools are located in the same states

There were fewer than 14 first-year students in the medical schools in the United States from each of four states (Nevada, Delaware, New Mexico, and Wyoming), and fewer than 25 students from each of six other states (Vermont, Arizona, Idaho, Maine, New Hampshire, and Montana) Of these 10 states, only Vermont and New Hampshire have medical schools The 57 students from the four states supplying the fewest medical students together with the 133 students from the six others represented only 2 4% of the total first-year class

In table 17 are listed the states in ascending order according to the number of enrolled first-year medical students per 100,000 population The six states with the largest number of first-year students are well scattered through this list, with half having less than the median number of students per 100,000 population (4 4) and half having the median number or more With the exception of Vermont, the other nine states having the smallest number of first-year students enrolled in medical schools in all instances have fewer students than the median, five of them having the lowest freshman medical student representation

Since last year's report, Florida and the District of Columbia have gained one or more first-year students per 100,000 population, 2 4 and 1 3 respectively The gain by Florida is at least partly accounted for by the new University of Miami School of Medicine These gains are balanced by five other states (New Mexico, Arizona, Idaho, Vermont, and Utah) whose student per population ratio decreased by one or more, leaving the national ratio and the median exactly the same

There were 11 schools, all state owned, that limited enrollment to students resident in the state in which each school is located This is two less than showed this restriction last year It is perhaps pertinent that other residents of these same states, equal in number to 44% of the first-year enrollment of these 11 schools, were accepted in medical schools outside their own states Legislative bodies could well consider the effect that adoption by all medical schools of similarly complete restrictive admission policies would have on the number of their own residents who would be able to acquire a medical education

The section of table 16 that depicts the state of residence of students in Canadian medical schools is worthy of notice There are 78 United States students enrolled in the first medical year of the Canadian schools Since there are only five Canadian students in the first-year class of American schools, the United States in reality is the recipient of a favorable balance that represents an educational opportunity equivalent to another American medical school

United States first-year medical students in Canada came from 20 different states with New York (29), California (8), and Illinois (7) accounting for 56% of such students All but two of the Canadian schools are involved, and McGill has 57 United States students in the first medical year This is more than the first-year enrollment in seven of the approved four-year American schools

TABLE 17 —*Ratio of Freshman Students to State Populations, 1955-1956*

Numbers of Students per 100,000 Population* in the Approved Medical and Basic Science Schools of the United States

† Nevada	.9
† New Mexico	1.5
† Arizona	2.2
† Maine	2.4
† Delaware	2.6
Missouri	3.1
California	3.3
North Carolina	3.5
West Virginia	3.5
† Idaho	3.6
Maryland	3.8
† Montana	3.8
† Rhode Island	3.9
Alabama	4.0
Illinois	4.0
Washington	4.0
Michigan	4.1
New Hampshire	4.1
Texas	4.2
Virginia	4.2
Indiana	4.3
† Wyoming	4.3
Connecticut	4.4
Georgia	4.4
Kentucky	4.4
Ohio	4.4
Oregon	4.4
Wisconsin	4.4
Kansas	4.5
South Carolina	4.5
Massachusetts	4.6
Minnesota	4.9
Pennsylvania	5.0
Iowa	5.1
Florida	5.2
† New Jersey	5.2
Vermont	5.3
Colorado	5.4
Mississippi	5.4
Louisiana	5.7
Oklahoma	5.9
Tennessee	5.9
New York	6.0
Arkansas	6.1
North Dakota	6.1
South Dakota	6.1
District of Columbia	6.3
Utah	7.2
Nebraska	7.3
United States	4.6

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* Estimated July 1 1955 total population excluding members of the Armed Forces stationed in each area **Current Population Reports** Series P-25 No 129 Jan 20 1956

† State with no medical school

ENROLLMENT OF WOMEN STUDENTS

Information by school on the number of men and women students enrolled and graduated can be found in table 18 Dartmouth and Jefferson continued to limit their enrollment to men, and Women's Medical College enrolled only women The number of women students again showed a small increase (2 3%) com-

TABLE 18 —*Distribution of Students and Graduates in the United States and Canada by Sex, 1955-1956*

	Students		Graduates	
United States	Men	Women	Men	Women
Medical College of Alabama	251	15	68	5
University of Arkansas	297	20	59	3
College of Medical Evangelists	373	22	76	8
University of Southern California	250	12	64	4
Stanford University	210	20	58	6
University of California San Francisco	295	19	76	3
University of California Los Angeles	158	12	33	3
University of Colorado	292	23	64	8
Yale University	244	20	67	4
Georgetown University	412	29	105	5
George Washington University	358	16	84	4
Howard University	263	26	63	5
University of Miami	181	17	23	3
Emory University	277	7	69	2
Medical College of Georgia	338	14	65	2
Chicago Medical School	282	1	72	1
Northwestern University	500	23	129	5
Stritch School of Medicine	314	11	76	3
University of Chicago	258	18	69	2
University of Illinois	673	33	155	4
Indiana University	567	19	189	2
State University of Iowa	490	11	107	3
University of Kansas	415	13	120	0
University of Louisville	350	20	88	5
Louisiana State University	407	20	89	7
Tulane University	[illegible]	15	121	3
Johns Hopkins University	264	22	62	7
University of Maryland	394	11	95	3
Boston University	268	16	66	4
Harvard Medical School	406	34	143	6
Tufts University Medical School	424	19	109	2
University of Michigan	796	36	189	0
Wayne State University	298	13	61	2
University of Minnesota	457	24	109	6
University of Mississippi	129	5		
St Louis University	470	9	111	3
University of Missouri	85	3		
Washington University	345	14	96	8
Creighton University	257	10	74	8
University of Nebraska	321	10	80	3
Dartmouth Medical School	45	0		
Albany Medical College	212	9	47	1
University of Buffalo	253	13	59	3
Columbia University	414	48	104	14
Cornell University	317	21	79	5
New York Medical College	445	27	101	7
New York University	490	37	134	6
State University of New York New York City	540	41	133	13
State University of New York Syracuse	272	14	71	0
University of Rochester	290	13	60	4
Duke University	301	13	78	2
University of North Carolina	241	8	58	1
Bowman Gray School of Medicine	183	11	46	1
University of North Dakota	75	2		
Ohio State University	544	19	139	5
University of Cincinnati	325	13	82	3
Western Reserve University	295	27	73	5
University of Oklahoma	356	13	95	1
University of Oregon	290	15	67	4
Hahnemann Medical College	379	20	91	4
Jefferson Medical College	677	0	171	0
Temple University	407	21	120	5
University of Pennsylvania	477	23	110	5
University of Pittsburgh	351	12	85	2
Woman's Medical College of Pennsylvania		182		40
Medical College of South Carolina	284	12	64	3
University of South Dakota	69	3		
Meharry Medical College	245	14	60	2
University of Tennessee	746	35	190	9
Vanderbilt University	194	10	48	3
Baylor University	325	14	75	2
Southwestern Medical School	370	24	90	8
University of Texas	582	32	148	3
University of Utah	204	5	40	0
University of Vermont	170	10	42	2
Medical College of Virginia	339	27	81	7
University of Virginia	275	11	61	0
University of Washington	271	17	64	4
West Virginia University	57	8		
Marquette University	377	17	84	3
University of Wisconsin	290	20	68	11
University of Puerto Rico	157	27	34	9
Totals	27,066	1,573	6,504	341
Canada				
University of Alberta	206	10	57	2
University of British Columbia	205	17	58	4
University of Manitoba	281	9	58	6
Dalhousie University	201	13	50	1
Queen's University	* 295	16	58	1
University of Ottawa	† 159	6	31	1
University of Toronto	‡ 527	57	140	11
University of Western Ontario	216	15	52	6
Laval University	510	24	73	5
McGill University	409	26	101	7
University of Montreal	415	29	87	9
University of Saskatchewan	73	10		
Totals	3,449	232	763	53
Grand Totals	30,515	1,805	7,267	394

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* 59 men 6 women premedical students excluded

† 43 men 8 women premedical students excluded

227 men 23 women premedical students excluded

pared with the previous year, but the number of women graduates was again smaller than in the last year, the smallest in nine years

Excluding Woman's Medical College, medical schools of two universities (Columbia and State University of New York, New York City) enrolled 40 or more women The medical schools of three other universities enrolled 35 or more women (University of Michigan, New York University, and University of Tennessee) In only two medical schools did women account for 10% or more of the total enrollment (Columbia University and University of Puerto Rico) Women represented more than 10% of the graduating class of five schools (University of Puerto Rico, University of Wisconsin, Columbia University, University of Miami, and the University of Colorado)

TABLE 19 —*Women in Medicine in the United States, 1905-1956*

Year	Women Students	Percentage of all Students	Women Graduates	Percentage of all Graduates
1905	1 073	4 1	219	4 0
1910	907	4 0	116	2 6
1915	592	4 0	92	2 6
1920	818	5 8	122	4 0
1925	910	5 0	201	5 1
1926	955	5 0	212	5 4
1927	964	4 9	189	4 7
1928	929	4 5	207	4 9
1929	925	4 4	214	4 8
1930	955	4 4	204	4 5
1931	900	4 5	217	4 6
1932	955	4 3	208	4 2
1933	1 050	4 7	214	4 4
1934	1,090	4 5	211	4 2
1935	1,077	4 7	207	4 1
1936	1,133	5 0	216	4 7
1937	1 113	5 1	235	4 4
1938	1 161	5 4	237	4 6
1939	1,144	5 4	260	5 1
1940	1,145	5 4	253	5 0
1941	1 146	5 4	280	5 3
1942	1,164	5 3	270	5 4
1943	1,150	5 1	241	4 6
1944	1,176	5 0	239	4 7
1944 (2d session)	1,141	4 8	252	4 9
1945	1,352	5 6	262	5 1
1946	1,868	8 0	242	4 2
1947*	2,183	9 1	342	5 4
1948	2,150	9 5	392	7 1
1949	2 100	8 0	612	12 1
1950	1,806	7 2	595	10 7
1951	1,564	6 0	408	7 6
1952	1,471	5 4	351	5 7
1953	1,465	5.8	363	5 5
1954	1,502	5 8	360	5 2
1955	1,537	5 4	345	4 9
1956	1,573	5 5	340	5 0

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* Includes additional classes

Table 19 indicates the number and proportion of women enrolled and graduated by year since 1905 Although there is little evidence of significant change in recent years, the increased enrollment for the past three years may suggest that the absolute decrease in women graduates will be of short duration It appears already that the relative decrease has stopped

STUDENT FEES

Fees for resident and nonresident students charged by each medical school are listed in table 1 During the year covered by this report, the average tuition fee in American schools for resident students was $684 and for nonresident students was $857 Comparable figures for last year were $646 and $807

MILITARY LIABILITY OF MALE MEDICAL STUDENTS

This year medical schools were again requested to classify all male students as to whether they had any military liability under the Universal Military Service and Training Act, as amended Male students with no military liability include those who (*a*) served on active military service duty in excess of 90 days between Dec 7, 1941, and Sept 2, 1945, (*b*) served on active military duty in the armed forces for more than one year between Sept 16, 1940, and June 24, 1948, or (*c*) served on active military duty in the armed forces for two years or more after June 24, 1948, and ended service with an honorable discharge All male students not falling within one of these three categories are, therefore, subject to military liability

Table 20 shows the distribution by class of the number of male students with and without military liability Those male students with military liability constitute 81% of the first-year class, 82% of the second-year, 82 5% of the third-year, and 80% of the fourth-year group Roughly 81 5% of all male students enrolled in medical schools in 1955-1956 were subject to military liability It is to be noted that the number cited as liable for service makes no allowance for physical disabilities and other factors that would render an unknown percentage ineligible for service

TABLE 20 —*Military Liability of Male Medical Students, 1955-1956*

	First Yr	Second Yr	Third Yr	Fourth Yr	Totals
Men with no Military Liability	1 363	1 205	1,157	1,300	5 025
Men with Military Liability	5,820	5,535	5 412	5 274	22 041
Total Enrollment	7 183	6 740	6,569	6 574	27 066

PREPROFESSIONAL PREPARATION OF FIRST YEAR MEDICAL CLASS

Since January, 1953, the minimum requirement for admission to an approved medical school has been three years of college preparatory study In advocating this minimum the Council on Medical Education and Hospitals recommends a full four-year college course as more desirable in order that a broader background education may be obtained In the "Essentials of an Acceptable Medical School," the Council indicates provision for consideration of the unusually intelligent, gifted, and mature student who may have less than the three-year minimum college education, through stating that "rarely a school will be justified in admitting a superior student under exceptional conditions after two years of college work"

For some time there has been concern on the part of many medical educators over the ever increasing length of time involved in the educational process of preparing for the practice of medicine Currently some medical schools are giving serious consideration to the revision of premedical requirements directed towards reduction of the time factor and content of educational experience prior to admission to the study of medicine In recent years many schools have lengthened the academic year in medicine so as to permit more adequate opportunity for coverage of certain areas Consideration and serious thought might well be given to the period involved in the education of a physician today in view of the gradual lengthening of the required college-premedical experience on the one hand and the lengthening programs leading to specialization on the other hand How great a segment of an individual's life should be devoted to the process of preparing to engage in professional activity in medicine? Are there not challenges for sound educational experimentation in this area that might point to means of satisfactory attainment through better integration of some aspects of premedical and medical education as well as readjustments in the initial stages of graduate training (internship)?

TABLE 21 –*Premedical Training of Freshmen Students in the United States, 1955-1956*

	No of Freshmen	Three Yrs College Training	Four Yrs College Training	No Holding Degrees	Percentage With Degrees
Medical College of Alabama	81	10	71	69	85.2
University of Arkansas	93	34	59	53	57.0
College of Medical Evangelists	99	0	99	97	98 0
University of Southern California	69	25	44	39	57 0
Stanford University	58	33	25	25	43 1
University of California San Francisco	77	44	33	31	40.3
University of California Los Angeles	50	13	37	37	74 0
University of Colorado	86	33	53	39	45 2
Yale University	79	14	65	65	82.3
Georgetown University	115	3	112	111	96.5
George Washington University	102	13	89	68	66 7
Howard University	79	0	79	79	100.0
University of Miami	73	15	58	54	93 1
Medical College of Georgia	101	24	77	77	76.2
Emory University	73	26	47	43	58 9
Chicago Medical School	73	0	73	73	100 0
Northwestern University	133	46	87	83	62.4
Stritch School of Medicine	88	51	37	35	39.8
University of Chicago	72	15	57	45	62.5
University of Illinois	167	91	76	63	37 7
Indiana University	155	77	78	69	44.5
State University of Iowa	120	70	50	43	35.8
University of Kansas	101	9	92	87	86 1
University of Louisville	97	10	87	87	89 7
Louisiana State University	126	41	85	67	53.2
Tulane University	131	50	81	54	41 2
Johns Hopkins University	74	0	74	74	100 0
University of Maryland	96	32	64	61	63.5
Boston University	73	2	71	70	95.9
Harvard Medical School	118	1	117	117	99.2
Tufts University	111	6	105	105	94.6
University of Michigan	206	95	111	111	53.9
Wayne State University	76	41	35	35	46 1
University of Minnesota	128	74	54	50	39 1
University of Mississippi	80	50	30	20	25 0
St Louis University	127	21	106	95	74 8
University of Missouri	45	16	29	26	57.8
Washington University	87	19	68	62	71 4
Creighton University	76	33	43	35	43 4
University of Nebraska	87	38	49	44	50 6
Dartmouth Medical School	25	23	2	2	8 0
Albany Medical College	64	0	64	64	100 0
University of Buffalo	85	8	77	77	90 6
Columbia University	119	0	119	119	100 0
Cornell University	84	3	81	81	96 4
New York Medical College	128	1	127	124	96 9
New York University	131	10	121	121	92 4
State University of New York New York	151	7	144	135	89 4
State University of New York Syracuse	80	14	66	66	82.5
University of Rochester	71	4	67	67	94 4
University of North Carolina	68	26	42	39	57.3
Duke University	77	26	51	46	59 7
Bowman Gray School of Medicine	54	6	48	48	88 9
University of North Dakota	40	16	24	24	60 0
University of Cincinnati	93	2	91	91	97 8
Western Reserve University	63	1	62	61	97 6
Ohio State University	151	14	137	134	88 7
University of Oklahoma	101	47	54	42	41 6
University of Oregon	77	28	49	38	49 4
Hahnemann Medical College	109	8	101	101	92.6
Jefferson Medical College	176	5	171	171	97 2
Temple University	128	2	126	126	98 4
University of Pennsylvania	125	2	123	121	96.8
Woman's Medical College	51	5	46	46	90 2
University of Pittsburgh	100	17	83	83	83 0
Medical College of South Carolina	79	21	58	55	69 6
University of South Dakota	42	17	25	25	40.5
University of Tennessee	217	117	100	66	30 4
Meharry Medical College	75	2	73	72	96 0
Vanderbilt University	51	25	26	26	51 0
Southwestern Medical School	102	31	71	59	80 4
University of Texas	166	35	131	115	83 7
Baylor University	87	27	60	57	65.5
University of Utah	54	17	37	30	55 6
University of Vermont	50	4	46	46	92 0
University of Virginia	77	5	72	72	93.5
Medical College of Virginia	84	14	70	70	83.3
University of Washington	77	24	53	15	19.5
West Virginia University	31	11	20	18	58 1
University of Wisconsin	87	61	26	26	29 9
Marquette University	102	48	54	42	41.2
University of Puerto Rico	52	24	28	33	63.5
Totals	7,686	1,933	5 753	5 375	69.9

In the entering class, 1955-1956, there were 7,686 students Of this number 1,933 had a minimum of three years of college education (table 21) Of the total, 5,753 (75%) had four years of college education and of this group 5,375 (70% of the total) possessed baccalaureate degrees

COLLEGE RECORD OF FIRST YEAR MEDICAL CLASS

Table 22 represents a comparative analysis of the premedical scholastic record of the entering class in medicine each year since 1950-1951 The table undoubtedly reflects the fact that in 1950-1951, when there was a relatively higher proportion of students admitted with "A" college grade averages, the total number of applicants was well over 22,000 as compared to less than 15,000 during the past two or three years Over the six-year period the proportion of students admitted to medical schools with "A" college grade averages has fallen from 40 to 15 8%, while those admitted with "B" averages have increased from 43 to 70 6% It is of interest that there has been relatively little change in the number of students admitted with a "C college grade average, although this group has declined from 17% in 1950-1951 to 13 6% in 1955-1956

TABLE 22 –*Comparative Analysis of College Records of First Year Medical Students, 1950-1956*

College Grade Average First Year Medical Students	1950-1951	1951 1952	1952-1953	1953-1954	1954 1955	1955-1956
3 6-4 0 (A)	40	30	18 0	21 1	16.8	15 8
2 6-3.5 (B)	43	55	67.5	68 9	69 0	70 6
1 0-2.5 (C)	17	15	14.5	10 0	14 2	13.6

In view of the type of inquiries received by the Council, it is obvious that there is still much misunderstanding on the part of premedical college advisors, premedical students, and the public in regard to the limitation of students admitted to medical schools to the group having 'A" college grade averages This reemphasizes the need for interpretation of the fact that college academic achievement as measured by scholastic records is only one factor among many utilized in the selection of medical students

ATTRITION OF MEDICAL STUDENTS

For each of the past two years, it has been possible to obtain data from the medical schools on student attrition By publishing similar information in each succeeding year, losses in any given class can be shown throughout the four years that class is in medical school Table 23 depicts by class and cause students lost to medicine during 1955-1956 Comparison of these figures with the previous year reveals considerable constancy in the percentage of total losses in each class and the total losses in relation to the total enrollment for the past two years There is, however, a difference this year compared with 1954-1955 in the causes of loss in the third-and-fourth-year classes

Two-thirds of all losses in both 1954-1955 and 1955-1956 were in the first-year class The current data for 1955-1956 show that 67 5% of those losses were due to failure or withdrawal in poor academic standing The second-year class had 62% of their losses from this cause Although in the third-and-fourth-year classes of 1954-1955 more than two-thirds of the attrition were students who withdrew in good academic standing, this cause accounts for less than half (44 9%) of the losses in these two classes in 1955-1956 Though this change in ratio appears significantly large, the absolute number of students concerned is relatively low Thus a change in the reason one student withdrew in each of 15 schools would erase this difference without necessarily indicating any significant trend Only observation over a period of several years can determine the significance, if any, of the change in cause of attrition of third-and-fourth-year students in 1955-1956 It is to be hoped that withdrawals of students in good academic standing because of financial need or lack of counseling can be minimized by the increasing interest in these factors on the part of the medical schools

TABLE 23 – *Attrition in the Approved Medical Schools in the United States, 1955-1956*

	Enrollment	Failed	Withdrew Poor Standing	Withdrew Good Standing	Totals	Percentage of Enrollment Lost
First Year	7,686	281	93	106	480	6 1
Second Year	7 174	87	9	58	154	2 1
Third Year	6 893	38	10	30	78	1 1
Fourth Year	6 886	4	2	14	20	0 3
Totals	28 639	410	114	208	732	

Table 24 shows, by type of school ownership, data referable to enrollments, applications, and attrition due to unsatisfactory scholarship by the first-year class Last year it was noted that interpretations of causal relationships from a similar table should be made with caution The data for 1955-1956 justify this reservation The failure rate of the first-year class is not greatly dissimilar this year for public and private schools as it was in 1954-1955, even though there is an even greater discrepancy in the number of applications Note that the figures in table 24 refer to applications, not applicants It can be seen that the total first-year enrollment was shared equally by public and private schools

TABLE 24 – *First Year Enrollments, Applications, and Attrition with Poor Scholarship by Type of School Ownership, 1955-1956*

	Publicly Owned	Privately Owned
No of schools	39	43
Percentage of enrollment	49	51
Percentage of enrollment from out of state	[illegible]	31
*Percentage of applications	19	81
Percentage of failures and withdrawals in poor academic standing	56	44

* Puerto Rico figures not available

GRADUATES

The graduates of approved medical schools in the United States in 1956 were fewer than in the past two years This was anticipated in the annual report last year Several factors provide adequate explanation as well as portend that the present drop is an incident in a continuing trend to increasing numbers of graduates For the first time in several years, there were no double graduation classes by medical schools Stanford in 1954-1955 was the last school to discontinue its intern year required for graduation, producing two graduating classes In the years until 1955-1956, as schools discontinued their required intern year, double graduating classes occurred The difference between the 1954-1955 third-year class that became the 1955-1956 fourth-year and graduating class is accounted for by students who withdrew or failed

In 1956, six medical schools (Harvard, Texas Medical Branch, Tennessee, Michigan, Illinois, and Jefferson) each graduated more than 150 students Eight schools (University of California, Los Angeles, Woman's Medical, Albany, Bowman Gray, Puerto Rico, Vermont, Miami, and Utah) each had fewer than 50 students in their graduating classes Information in regard to the number of graduates each year since 1930 can be found in table 15 The variation this year is similar to that of 1951-1952 Except for such incidents, there has been a continuing increase

The 53 students in the 1955-1956 third-year classes in the medical schools of the University of Mississippi and the University of Missouri, which are developing four-year programs, will not entirely compensate for the smaller total third-year class from which the graduates will come next year It is likely, therefore, that next year's graduating class will again be a contrary incident in the over-all trend The development of the new or extending schools, together with the larger total first and second year classes, portends that new record numbers of graduates will occur in two or three years

TABLE 25 – *Students in the Required Intern Year in the United States, 1931-1956*

Year	Number of Students
1930 1931	1,025
1935 1936	1 213
1940-1941	1 058
1945-1946	488
1950-1951	370
1955 1956	0

REQUIRED INTERN YEAR

Two years ago the trend toward abandoning the internship as a requirement for graduation was highlighted With the discontinuance of this requirement by Stanford University last year, there are now no students serving internships as a prerequisite to graduation Table 25 summarizes at five-year intervals since 1930 the number of students who were required to serve internships as a prerequisite to graduation All medical school graduates today serve internships prior to entering practice or proceeding with graduate education through residency or fellowship training Thus, there is no indication that the elimination of this requirement of the medical schools for graduation has produced any trend away from the internship as a step in the medical education process This has, however, removed any jurisdiction of the medical school over selection or approval of the internship that is taken by graduates

THE NEXT ENTERING CLASS

Data this year from medical schools, including schools developing new programs, indicate the first-year class in 1956-1957 will be larger than was the 1955-1956 entering class Two new medical schools, the University of Florida at Gainesville and Seton Hall University, will begin to enroll first-year medical students The newly developing Albert Einstein College of Medicine plans to increase the size of the next entering class Development of a four-year program by the University of Missouri makes possible an increase in its entering class The number of applicants[9] for the study of medicine rose 14% this past year (table 26) If the number of applicants continues to be higher next year, the trend during the past six years will have been reversed, permitting medical schools to fill all available openings with qualified applicants This would indicate a maintenance of and possible increase in the numbers of entering students in subsequent years

FOREIGN MEDICAL SCHOOLS AND STUDENTS

EVALUATION OF FOREIGN-TRAINED PHYSICIANS

Since 1950, the Council on Medical Education and Hospitals in collaboration with the Association of American Medical Colleges has maintained a listing[10] of some 50 foreign medical schools whose graduates the two groups have recommended to be considered on a comparable basis with graduates of our own approved schools This listing was designed primarily to be of assistance to licensing boards in their dealings with foreign-trained physicians seeking licensure The listing was always qualified to the effect that it was tentative and not complete so that foreign schools not so listed were neither approved nor disapproved and that graduates of unlisted schools should be evaluated on an individual basis by the licensing agencies, hospitals, and other organizations concerned

Foreign medical schools were included in the listing solely upon information furnished by recognized American medical educators who were able to visit the schools during their travels abroad This method of evaluation necessarily excluded from this recommendation those individuals who were graduates of schools offering sound education in medicine at the time of graduation but whose programs had deteriorated during or after the last world war The method also could automatically bring the benefit of the recommendation to older physicians who graduated from a foreign medical school at a time when the educational program was weak, provided that the program had been sufficiently strengthened by the time of the visit of the American medical educator

Up to the current moment, almost one-quarter of licensing boards continue to not accept for examination any foreign-trained physicians More than one-quarter of the licensing boards will accept for examination only those foreign-trained physicians who are graduates of the medical schools incorporated in this listing Thus for more than half of all state medical examinating boards, the listing has either been of no use or has lent itself to an unintended use During the first five years of the existence of the listing, a relatively greater percentage (68%) of graduates of

TABLE 26 —*Number of Completed Applications Acted upon by Each Medical School and the Total Number of Applications Filed by These Applicants, 1955-1956**

	Size of Freshman Class	Applicants to each Medical School			Total Applications Filed by Applicants to Each School	Average Number of Applications per Applicant
		Men	Women	Total		
Alabama	79	162	12	174	499	2.9
Albany	60	966	56	1 022	10 690	10.5
Arkansas	92	162	12	174	258	1.5
Baylor	84	671	36	707	4,949	7.0
Boston	77	1 010	65	1 075	10,533	9.8
Bowman Gray	52	593	19	612	5,382	8.8
Buffalo	80	783	34	817	8,141	10 0
California L.A	49	419	41	460	3 117	6.8
California S F	75	451	52	503	3,226	6 4
Chicago Medical	72	943	30	973	10 084	10 4
Chicago Univ of	73	817	53	870	7,926	9 1
Cincinnati	92	786	43	829	6 490	7.8
Colorado	85	163	16	179	351	2.0
Columbia P & S	120	1,360	139	1 499	12 675	8.5
Cornell	84	1,299	122	1 421	12,265	8 6
Creighton	76	639	19	658	4,945	7.5
Dartmouth	24	222	1	223	2,221	10 0
Duke	75	675	25	700	5,812	8.3
Einstein	56	815	41	856	8 480	9.9
Emory	41	542	28	570	3 756	6 6
Georgetown	113	873	48	921	8,222	8.9
George Washington	102	1 195	51	1,246	11 697	9 4
Georgia	87	209	13	222	500	2.3
Hahnemann	109	968	39	1 007	8 710	8 6
Harvard	115	1 155	89	1,244	9 604	7.7
Howard	76	378	30	408	1 772	4.3
Illinois	106	549	46	595	2 493	4.2
Indiana	152	416	21	437	1,802	4 1
Iowa	117	241	14	255	909	3 6
Jefferson	174	1 756		1 756	13 006	7.3
Johns Hopkins	72	715	55	770	6,955	9 0
Kansas	100	328	25	353	1,990	5 6
Louisiana	115	282	16	298	1 165	3.9
Louisville	94	260	10	270	951	3 5
Loyola (Stritch)	88	744	47	791	5,555	7 0
Marquette	102	882	41	923	6,317	6.8
Maryland	96	317	9	326	2,255	6.9
Medical Evangelists	96	151	9	160	271	1 7
Meharry	67	465	42	507	1 724	3 4
Miami	72	169	10	179	565	3.2
Michigan	201	571	29	600	2,684	4.5
Minnesota	125	288	17	305	1 168	3.8
Mississippi	77	190	6	196	317	1 6
Missouri	43	143	5	148	590	4 0
Nebraska	84	179	9	188	655	3.5
New York Medical	129	1 760	133	1 893	16 759	8.9
New York University	149	1,243	114	1,357	13,324	9.8
North Carolina	67	248	14	262	1 446	5.5
North Dakota	37	129	5	134	768	5.7
Northwestern	130	1 468	78	1,546	11,920	7 7
Ohio State	150	465	23	4	1,961	4 0
Oklahoma	100	193	8	201	683	3 4
Oregon	77	283	19	302	1,599	5.3
Pennsylvania	125	1,384	85	1 469	12,518	8.5
Pittsburgh	100	662	40	702	4,900	7 0
Puerto Rico	52	110	25	135	404	3 0
Rochester	71	982	55	1 037	10 163	9.8
St Louis	122	926	25	951	7,562	8 0
South Carolina	80	159	5	164	272	1 7
South Dakota	42	171	3	174	1 108	6 9
Southern California	69	546	49	595	4,257	7.2
Southwestern	102	400	38	438	1 175	2.7
Stanford	56	431	22	453	3,531	7.8
State U of N Y (N Y)	148	1,351	93	1 444	13 458	9.3
State U of N Y (Syracuse)	77	917	51	968	9 709	10 0
Temple	132	1 441	69	1,510	12 075	8 0
Tennessee	201	369	24	393	918	2.4
Texas	154	473	33	506	1,315	2 6
Tufts	111	580	48	628	4,880	7.8
Tulane	129	877	44	921	6 613	7.2
Utah	54	207	5	212	1,256	5.9
Vanderbilt	51	619	24	643	6 062	9 4
Vermont	50	392	25	417	3 753	9 0
Virginia Univ of	76	548	26	574	4,520	7.9
Virginia Med Coll of	84	382	21	403	2 492	6.2
Washington Univ of	75	358	18	376	2,099	5.6
Washington (St Louis)	84	1,261	63	1,324	10,938	8.3
Wayne State	74	307	17	324	1,058	3.3
Western Reserve	82	1 112	72	1,184	9,331	7.9
West Virginia	31	108	8	116	407	3.5
Wisconsin	62	163	14	177	557	3 1
Woman's Medical	51		212	212	1 153	5 4
Yale	78	955	64	1 019	9 193	9 0
Totals	7,602	50,922	3,239	54 161		3.6

* Data from Gee[9]

listed schools passed licensure examination than did graduates of unlisted schools (46%) However, because of the greater number of graduates of unlisted schools that were examined, 75% of the total number of foreign graduates who passed licensure examinations during this period were from unlisted schools

At the time the listing of foreign medical schools was first formulated, the major problem it was designed to alleviate was related to providing educational evaluation for foreign-trained physicians coming to the United States as permanent immigrants Although this problem still exists and is augmented by the beginning return of American citizens who have studied medicine abroad, the ever-increasing educational exchange programs have shifted the major emphasis Currently, the vast majority of foreign-trained physicians entering the United States do so under an exchange program seeking further training as interns or residents under temporary visas Most of the physicians in this category are from unlisted schools

Hospitals in the United States have not had available any adequate mechanism for evaluating the medical qualification of such physicians they have accepted as house officers This has led to many unfortunate experiences and disappointments to both the hospitals and the physicians

These are but some of the many reasons that led to the conviction that the listing of certain foreign medical schools with the recommendation that their graduates be considered on a basis comparable to graduates of our own schools was neither an adequate nor an equitable solution to their problem This conviction of the need for a new approach resulted in the formation approximately two years ago of the Cooperating Committee on Graduates of Foreign Medical Schools with participating representatives of the Council on Medical Education and Hospitals, the Federation of State Medical Boards, the American Hospital Association, and the Association of American Medical Colleges

The following principles gave guidance and direction to the Cooperating Committee in its considerations It is believed that these principles should similarly give guidance in the administration of the program

1 Although the responsibility to share educational opportunities in medicine is recognized, the primary concern must be for the health care of the American public Thus, before assuming responsibility for the care of patients as interns or residents, all graduates of foreign medical schools (immigrants, exchange students, and American graduates of foreign medical schools) should give evidence, as nearly as can be measured, of having reached a level of educational attainment comparable to that of students in American schools at the time of graduation

2 The primary objective of this committee is to devise an effective mechanism for measuring educational attainment in the absence of intimate and continuing knowledge of the educational background of foreign-trained physicians This mechanism should provide hospitals with pertinent information regarding the medical qualifications of foreign-trained physicians seeking position as interns or residents It should not interfere with the hospital's privilege of making its own selection among qualified physicians It should not serve as a substitute for or interfere with the normal licensure procedures of the various state boards, although the program may be helpful to the boards

3 It is not intended that this mechanism be applicable to those foreign medical school graduates in the United States as temporary students participating in programs of medical and related studies in recognized universities, medical schools, and postgraduate schools, who by the very nature of their study are not involved in the responsibility of patient care

It is the belief of the Cooperating Committee that implementation of its proposed program will afford hospitals needed assurance in regard to the medical qualifications of foreign-trained physicians seeking positions as interns and residents This program represents an extension to foreign graduates of the same principle that has proved its value and long been in effect for American graduates

Proposed Program

The emphasis in this program is placed on evaluating the medical qualifications of the individual foreign-trained physician who wishes to come to the United States, rather than attempting to evaluate on a continuing basis the educational programs of the hundreds of foreign medical schools that serve as potential sources of these foreign-trained physicians

The program is designed to establish two principal criteria in regard to each such foreign-trained physician (1) that he is a graduate of a bona fide medical school and (2) that, as nearly as can be measured, he has reached a level of educational attainment comparable to that of students in American schools at the time of graduation These criteria are to be established by evaluation of the foreign-trained physician's medical credentials in view of predetermined minimal standards and by examination of the foreign-trained physician for factual knowledge of medicine

Evaluation of Medical Credentials

The basic requirements listed below must be met in order for the foreign-trained physician's credentials to be considered satisfactory As evidence of fulfillment of these requirements, the candidate should present medical credentials in original form with an acceptable English translation These credentials together with the bona fide status of the medical school should be verified by the American consul in the country in which the school of graduation is located

Basic Requirements

1 A minimum of 18 years of total formal education

2 Included in this minimum of 18 years of total formal education should be a minimum of 32 months of attendance and direct study of medicine, excluding any time devoted to what in the United States would be considered as premedical study or internship

3 In any country where the minimum standards stated above do not constitute sufficient educational achievement to acquire licensure in that country, the latter rather than the minimum previously described would be required Although it would be expected that licensure would be achieved in the country in

which is located the school of graduation, under exceptional circumstances such licensure would not be demanded if the candidate had fulfilled all of the educational requirements for licensure

4 Evidence of satisfactory completion of the above described courses of study

5 As evidence of acceptable moral and ethical behavior, each candidate must present a properly executed affidavit that he has not been convicted of any crime involving moral turpitude and that he has never been censored or had other punitive action taken against him by any recognized medical body including licensing agencies for reasons of immoral conduct

Examination for Factual Knowledge in Medicine

The objectives that this program is designed to fulfill dictated certain factors that had to be considered in determining the nature of the examination

1 An acceptable examination must be a valid test of the foreign physician s factual knowledge in medicine The examination must also give sufficient insight into the applicant s ability to approach rationally a clinical problem and follow it through to a logical conclusion as the result of application of basic medical concepts rather than empiric knowledge

2 Since applicants to this evaluation service are to be measured in comparison to the performance of graduates of American medical schools the examination must lend itself to such a comparison

3 If this program is widely accepted, as the committee is confident it will be, foreign-trained physicians seeking further training in the United States will not be able to find positions offering such experience until they have successfully completed all phases of the program Those physicians seeking further training in the United States cannot obtain a student visa until they have already received a position offering this additional training It therefore is necessary that the examination be conducted abroad as well as in the United States Under these circumstances it is then also most advisable that the administration of the examination require minimal supervision

4 The costs of preparation and administration of the examination must not be prohibitive

On the basis of advice from consultants experienced in educational testing, the Cooperating Committee concluded that an objective-type examination of approximately 400 properly selected test items would provide for purposes of this program a valid measure of medical knowledge A significant number of these items should consist of case presentations with mulitple questions based on them to determine the applicant s ability to interpret symptoms, signs, and basic laboratory data in arriving at accurate diagnosis and rational therapy Such an examination could be given in a single day, divided into a morning and afternoon session

Utilization of the objective multiple-choice examination presents many advantages Perhaps most important among these for the purposes of this program is that such an examination lends itself to rapid, accurate, impartial machine scoring and thorough statistical analysis, thus providing a sound basis for many comparative studies Another important advantage of this type of testing is that the administration of it is not complex and only minimal supervision is necessary so that it could be given abroad

One of the important problems that has been encountered with graduates of foreign medical schools who have taken further training in hospitals in the United States has been their lack of satisfactory command of English Inability to communicate well with colleagues, staff physicians, and patients can readily lead to disastrous accidents in patient care Furthermore, it is highly unlikely that any effective learning can occur without easy intercommunication between student and teacher Facility with English is to be one of the requirements for participation in this program and will be one of the factors measured

Successful completion of all phases of this evaluation program would result in certification of this achievement to hospitals and other interested organizations with the approval of the foreign-trained physician concerned

Current Status of Evaluation Service

The four parent organizations of the Cooperating Committee have all endorsed this program An organization to be entitled “Evaluation Service for Foreign Medical Graduates” is now in the process of formation to complete the necessary administrative planning It is hoped that this service will be available to evaluate foreign-trained physicians by the summer of 1957 Each of the parent groups have named two representatives who will compose the board of trustees of this new organization and who will be responsible for the management of its property, business, and affairs At the time this new program becomes an effective working mechanism, it is anticipated that the current listing [10] of certain foreign medical schools will be abandoned

TABLE 27 –*Foreign Citizens Enrolled in United States Medical Schools*

	1954-1955	1955-1956
1st year class	104	139
2nd year class	110	100
3rd year class	89	125
4th year class	76	84
Total[a]	379	452

FOREIGN STUDENTS STUDYING MEDICINE IN THE UNITED STATES

In 1955-1956 there were 452 foreign citizens (excluding Canadians) enrolled as undergraduate students in medical schools in the United States These students were enrolled in 61 of our 82 approved schools Study of table 27, which compares enrollment of foreign citizens of last year with the current year, indicates that the two major factors accounting for the present increased enrollment are more admissions to the entering class and also acceptance of foreign students into the third-year class on the basis of prior study outside of the United States

In terms of numbers of students involved, our greatest contribution to the medical education of foreign physicians is at the graduate level More than 6,000 foreign-trained physicians in the United States on a temporary basis for further study served during the last year as interns or residents [11] In addition, there were approximately 1,000 foreign citizens [12] in the United States on immigration visas serving as house officers

AMERICAN STUDENTS STUDYING MEDICINE IN OTHER COUNTRIES (EXCLUDING CANADA)

In October, 1955, the Institute of International Education published a preliminary report of the results of a 1954-1955 survey of United States citizens studying abroad According to this report, in the year surveyed there were 1,386 United States citizens enrolled in medical schools outside the United States and Canada Almost all of these (1,344) were studying medicine in Europe, with the large majority in schools in Switzerland (490), Italy (342), The Netherlands (125), and Belgium (103)

Presented for the first time in last year's report were data indicating that during the five-year period, 1950-1954, 99 initial licenses were granted by 18 states, the District of Columbia, and the Canal Zone to physicians born in the United States who were graduates of medical schools outside the United States and Canada It was noted that this information was not available from New York and Pennsylvania

The notation that this was just the beginning impact of United States citizens returning after acquiring their medical degrees abroad is substantiated by data for 1954-1955 During this one-year period, initial licenses were granted by 18 states and Puerto Rico to 89 individuals born in the United States who acquired their medical education abroad Again, information was not available from New York and Pennsylvania, but both states have agreed to furnish this data in the future The experience of this one year is almost equivalent to that of the preceding five years The study of the Institute of International Education referred to above seems to justify the belief that there will continue to be increasing numbers of United States citizens returning for medical practice after a medical education acquired abroad

THE INTERNSHIP

The 1956 Internship and Residency Number of The Journal will be published Sept 22, 1956, and will present statistical data and other information regarding training programs for interns and residents conducted in hospitals approved by the Council This report will include descriptive material, statistical tables and graphs, information on the National Intern Matching Program, the Internship Review Committee, the revised Essentials of an Approved Internship, the Residency Review Committees, and the Sears Roebuck Foundation, a brief report on foreign medical school graduates serving internships and residencies in approved hospitals, and the plan for future evaluation of the qualifications of foreign physicians who wish to come to the United States for further medical training Medical students, physicians, administrators, and others needing information of this nature are referred to the Internship and Residency Number of The Journal for 1956

The revised Essentials of an Approved Internship as adopted by the House of Delegates at the Clinical Session in November, 1955, have been published, incorporating the changes as suggested by the *ad hoc* committee on internships The principal modification was the adoption of the "one-fourth rule," which stated "A hospital which for two successive years does not obtain one-fourth of its stated complement of interns may be disapproved for intern training" Early in January, 1956, a copy of the revised Essentials was sent to the administrator and to the chairman of the intern committee of each hospital approved for the training of interns Attention was called to the "one fourth rule" in the covering letter In May, 1956, the following interpretation was given by the Council staff to this rule

1 All interns serving may be considered in the computation of the percentage of quota filled, this includes both graduates of American medical schools and graduates of foreign medical schools

2 The percentage of the intern quota filled will be calculated on the basis of (1) the quota published in the 1955 Internship and Residency Number of The Journal and (2) the number of interns on duty on Sept 1, 1956, as reported by the hospital Similar statistics will furnish the basis for computing the percentage of quota filled in following years

3 If an approved hospital fails to meet the requirements of the "one-fourth rule," a letter of warning will be sent to the hospital the first year, if it does not fill the required percentage for two successive years, approval may be withdrawn

4 Intern quotas may be changed on written request to the Council

5 Application of the "one-fourth rule" will obtain beginning in January, 1958 Any approved hospital that does not fill one-fourth of its intern quota for the two successive years 1956-1957 and 1957-1958 may have its internship approval withdrawn at that time

In the revised Essentials, it is specifically pointed out that, if the education of the intern is not the primary function of the internship, the hospital is in danger of having its approval removed

The question of the future of the internship continues to present an interesting and controversial problem to the professional and administrative staffs of hospitals Should it be discontinued? Should it be discontinued in hospitals affiliated with medical schools? Should all internships be rotating in type?

At the Annual Session in June, 1956, two resolutions were introduced into the House of Delegates to the effect that all straight internships should be abolished in favor of rotating internships Straight internships are presently approved in medicine, surgery, pediatrics, and pathology The majority of the programs offering straight services for interns occur in hospitals affiliated with medical schools On Sept 1, 1955, 10% of all approved internship positions offered were of the straight service type Included in this number were 625 straight internships in medicine, 396 in surgery, 157 in pediatrics, and 50 in pathology

The resolutions concerned were referred to the Reference Committee on Medical Education and Hospitals The following statements are quoted from the report of this committee

> The Reference Committee believes that there is a growing body of opinion within the profession in favor of a rotating internship It also recognizes the difficulties involved and the dangers to some established educational programs were action taken precipitously to disapprove straight internships, which are about 10% of the total number now approved It recommends the following substitute resolution for resolutions 11 and 38

RESOLVED

1 That the Council on Medical Education and Hospitals be requested to increase its efforts to encourage rotating internships rather than straight internships in all hospitals approved for the latter

2 That a report of the results of this effort be submited annually

This portion of the report of the Reference Committee was adopted by the House of Delegates As stated in the revised Essentials of an Approved Internship[13] "It is the opinion of the Council that the best general basic education is provided by a well organized and properly conducted rotating internship"

The problem of the straight internship is not one that can be solved easily It requires careful study and analysis over a period of time by medical educators, the professional staffs of hospitals, and hospital administrators

THE SEARS ROEBUCK FOUNDATION

Physicians completing their graduate training who may require financial assistance in initiating the establishment of medical practice units in areas considered medically deficient will be interested in investigating the program financed by the Sears Roebuck Foundation This foundation has made two grants of $125,000 to a revolving assistance fund administered by a Medical Advisory Board appointed by the Trustees of the American Medical Association These grants are dispersed by the board in the form of 10-year, nonsecured, supplemental loans ranging from $1,000 to $25,000 Loans range from 0 to 6% interest, depending on the rapidity of payment. All loans are designed to make up the difference between what can be raised through normal lending agencies and the total amount needed All funds collected in the form of interest and principal go into the revolving fund, thereby making the program self-perpetuating and providing the "seed" principle of growth and expansion at the same time It is estimated that, within 10 years, this fund will amount to over 2 million dollars because of this growth factor, which will do much to meet the needs of medical distribution

The purpose of the plan is to encourage physicians to locate in communities where their services are most urgently needed Because of the limited funds available at this time, all loans are competitive, thereby insuring that loans reach communities and physicians with the greatest need Preference is given to physicians, specialists, or general practitioners who desire to go to rural or rapidly growing suburban areas where medical care is inadequate

All applications are reviewed by the territorial or area Medical Advisory Board members, where they are approved or rejected If approved, they are then presented to the entire board, where all applications approved by the various area advisory boards are reviewed and final decisions made The board reviews applications on the following grounds (1) professional qualifications, (2) availability and quality of medical service in the community (loans are intended primarily to create units, but consideration is also given to improving and expanding existing units), (3) soundness of the plan for providing medical care, (4) financial initiative of applicant, thus insuring that loans are supplemental, and (5) the stipulation that no loan be granted for the purpose of refinancing existing debt or to be used for cost of living while establishing practice

This statement regarding the Sears Roebuck Foundation is presented in this issue of THE JOURNAL for the information of medical school and hospital administrators, officials of local and state medical societies, and others whose advice is sought by young physicians in regard to sources of financial assistance Physicians interested in applying for the Sears Roebuck assistance should contact their school, hospital, or county or state medical society for applications and more detailed information

PARTICIPATION OF MEDICAL SCHOOLS IN POSTGRADUATE MEDICAL EDUCATION

The need for continuing education throughout the professional career to keep abreast of advances in medical knowledge is being increasingly recognized by physicians as essential to their ability to render the best care to patients and to advance the health of the community During the past few years, for instance, more has been added to the factual knowledge of the prevention, basic mechanism, diagnosis, and treatment of disease than was discovered in the previous several centuries combined Medical school curriculums can incorporate these changes and advances in knowledge for undergraduate students of medicine Vital new discoveries, however, are of little immediate use against human diseases until physicians already in practice learn about them The communication to physicians of significant aspects of this accelerating pace of medical discovery provides one of the great challenges to modern medical education What was adequate knowledge for medical practice yesterday is not fully adequate today How best to meet this educational challenge is the broad problem of postgraduate medical education

The American Medical Association and its Council on Medical Education and Hospitals have become increasingly concerned with the educational activities and needs in this third or postgraduate phase of medical education, in order that it can be most helpful to the medical profession Initially, their entire attention was devoted to formal courses, though it is now apparent that such courses are only a part of the educationally significant programs in this field

Beginning in 1937, Dr Hamilton Anderson, a member of the staff of the Council on Medical Education and Hospitals, made a three-year study of continuation courses for practicing physicians by making a personal visitation to all the states Lists of such courses were published in THE JOURNAL between 1938 and 1940 Since 1940, such lists have appeared each year, though personal visits to or evaluation of such courses have not been repeated The most recent annual list of courses for physicians to be offered in the year beginning Sept 1, 1956, appeared in the July 28 issue of THE JOURNAL[14]

When it became apparent that postgraduate medical education embraces more than such courses, the Council in 1952 initiated a study of the whole field The results of this study were reported by Dr Douglas Vollan in THE JOURNAL last year[15] This report indicated that the basic problems facing postgraduate medical education now are analogous to those that faced medical schools 50 years ago and that faced graduate medical education in the second and third decades of this century These include (1) a lack of a clear definition of objectives, (2) a wide range in the educational value of the programs offered, (3) insufficient opportunities for physicians to participate in educationally meritorious programs, (4) problems in financing, and (5) a lack of national guidance and little sharing of experience for those desiring to establish or improve postgraduate programs

The Council reappraised the problems and the opportunities to be of assistance in this third phase of medical education In February, 1956, an *ad hoc* advisory committee on postgraduate medical education was appointed in order to secure as broad-based advice as possible This committee is composed of leaders in the profession representing backgrounds in private practice, in medical education, in schools and in hospitals and in medical societies, as well as a nucleus of others interested in this field It is expected that the advisory committee will report its recommendations to the Council on Medical Education and Hospitals within the next year

Programs for the continuation education of physicians in practice involve medical schools, hospitals, and medical societies working independently as well as cooperatively Though the educational implications of a physician reading the medical literature, consulting with his colleagues, and attending the usual medical society meetings are significant, these are methods of education chiefly under the direct control of the individual physician Postgraduate programs by hospitals, medical schools, and medical societies, on the other hand involve groups of people and educational techniques having close analogies with undergraduate and graduate medical education programs All three phases of medical education may involve the same educators in some instances It is with such programs that the Council on Medical Education and Hospitals hopes to be helpful to the practicing profession

For the first time this year, the annual questionnaire to medical schools contained an expanded series of questions concerning each school's role in the continuing education of physicians The questions were designed to elicit information regarding the responsibility each school felt to this field, whether the school had in effect or was developing a program for postgraduate medical education, as well as data about important facets of the administration, faculty, budget, and curricular planning of such programs

The word program" was chosen deliberately for these questionnaires as a word having a broad enough meaning to encompass the various kinds of primarily educational activities that constitute postgraduate medical education These activities include courses, both intramural at the school and extramural at outlying circuit centers, as well as cooperative educational efforts of other kinds between medical schools and hospitals or between medical schools and medical societies Some of this information from the medical school questionnaires is reported in the section on Medical School Activities in Postgraduate Medical Education

Questionnaires similar to those sent to medical schools have been prepared for mailing to hospitals and medical societies active in postgraduate medical education These were not mailed earlier to avoid possible conflict with the postgraduate course forms used to obtain information for the annual list published last month in The Journal The replies from hospitals and medical societies, together with the replies already secured from the medical schools, should provide much useful information for the further studies by the Council in this field Following the report on medical school activities will be found the report on postgraduate courses for practicing physicians, based on the analysis of courses offered from Sept 1, 1955, to May 30, 1956

MEDICAL SCHOOL ACTIVITIES IN POSTGRADUATE MEDICAL EDUCATION

Nearly three-fourths of the approved or newly developing American medical schools are engaged to some degree in programs for the education of practicing physicians (table 28) Many of those not so engaged as schools report participation by their faculties as individuals in programs conducted by medical societies and nonmedical school hospitals It should be pointed out that 10 of those schools having no such programs as schools are located in cities in which other medical schools are active in this field

Table 28 —*Medical School Activities in Continuation Education Programs for Physicians*

Number of schools engaged to some degree in postgraduate *medical education programs*		63
Number of schools now having no such programs as schools		22
Of which	2 are developing programs	
	3 are two year schools	
	1 is an entirely new school	
	1 cooperates with another school	
	12 are privately owned schools	
	3 are state universities	
	22	
Total of approved or newly developing medical schools		85

The amount of activity by the schools varies greatly in the field of postgraduate medical education Of the 63 schools reporting some activity, this varied from one school offering one course a year with a total enrollment of 36 physicians to another school offering 22 intramural courses, traineeships in many departments, 12 circuit course centers visited monthly, correspondence courses, and other educational activities totaling more than 2,000 physician enrollments a year

In response to a request for a statement from the dean of each school of its sense of responsibility toward this third phase of medical education, most stated that their educational efforts should include postgraduate programs On the basis of such statements and of present activities reported, 72 medical school faculties feel some responsibility in this field Of these, 40 schools' questionnaires contained a statement that indicated that postgraduate medical education is one of the major parts of their educational activities, or should be, together with fulfilling their responsibilities to the undergraduate and graduate phases of medical education Though 6 of these 40 schools do not have postgraduate programs now, 2 are developing them The other four do not have the faculty or budget that would permit the implementation of this sense of obligation they express to the continuing education of physicians Even among schools presently engaged in such programs, a significant number expressed the need for additional funds that would permit them to expand their postgraduate program activities by adding faculty personnel and facilities

Most of the schools (52 of the 63) active in postgraduate medical education have a faculty member other than the dean with the assignment for postgraduate program planning and coordination Such a director or assistant dean nearly always has other academic or administrative responsibilities In about half the schools having such a designee the individual heads a department, division, section, or committee responsible for the postgraduate medical education program of the school The policies regarding such a program usually are determined by a faculty committee, which may be the executive faculty or a special committee, often in consultation with the dean and others

Most of the schools design their programs or expect participation by physicians of a geographical region, usually a single state or a part thereof, though in the central and western states such a region may include more than one state Ten of the schools, including three *state universities*, do not orient their programs regionally and expect physicians from other regions to attend

Although 51 of the 63 schools having postgraduate programs design them for physicians in general practice as well as for physicians in specialty practice, though often in separate courses, 11 of the schools design their postgraduate programs exclusively for physicians in general practice One school offers continuation courses solely for specialists Several schools also mentioned programs for ancillary medical personnel, such as nurses and medical technologists

Eighteen of the 54 medical schools answering this question reported having some kind of educational affiliation of postgraduate program significance with community or small regional hospitals Seven of the 18 each had such an affiliation with more than 10 community hospitals Of the 38 not having such affiliations, 18 of the schools reported comparatively small postgraduate programs

POSTGRADUATE COURSES

Postgraduate courses for practicing physicians are not the only worthwhile kind of continuation education As compared with reading of the medical literature, consultation with professional colleagues, and medical society and hospital staff meetings, however, postgraduate courses for physicians have several advantages for study as an index of the stage of development of this phase of medical education First, postgraduate courses are or should be primarily educational activities for physicians in practice Second, information on their administration, financing, faculty, advance planning, content, and enrollments can be obtained Hence, third, their educational value can be estimated

Such information and its evaluation cannot be obtained regularly or reliably for individual medical reading and consultations between physicians Although some medical society meetings have scientific sessions of great interest and educational merit, such meetings often are not primarily educational in orientation because of the necessary business to be transacted, as well as because of other factors An important reason for omitting such meetings from the current course list and from the analysis of the 1955-1956 attendance figures was the incompleteness of data on such meetings

There are other activities with significant implications to postgraduate medical education that are not included in this section on postgraduate courses Many of the hospital and medical school conferences that are scheduled as a part of the internship and residency educational programs also attract staff physicians and others in local practice because of the educational merit and interest of such conferences They can be significant in the postgraduate education of the attending physicians not only because of their intrinsic worth but also because their more frequent and regular occurrence provides a more continuous educational program than can sporadic attendance at courses Such conferences are not included as "courses" in this report Also not included are the educationally significant programs for staff physicians cooperatively arranged between medical schools and community hospitals These account for the difference in number of medical schools listed in table 28 as having active postgraduate programs and those listed in table 29 as offering courses

TABLE 29 —*Numbers of Institutions and Organizations Offering Courses*[*]

	1955-56†	1956-57‡
Medical schools	49	44
University affiliated graduate and postgraduate schools and public health schools	6	6
Non university affiliated graduate and post graduate schools	2	2
General medical societies (national state inter state and county)	10	12
Specialty medical societies (such as American College of Physicians)	10	16
Academies of General Practice	3	6
Hospitals including V A hospitals	29	43
Government institutions (Army Navy USPHS)	8	11
Other (heart associations diabetes associations)	16	31
	133	171

For interpretation of table see text

† Nine month year

Twelve-month year

Each year the Council on Medical Education and Hospitals solicits information from hospitals, medical societies, medical schools, and other organizations regarding postgraduate courses for physicians to be offered in the coming year and publishes the information submitted in a tabular list in THE JOURNAL The current list for the year beginning Sept. 1, 1956, was published in the July 28 issue of THE JOURNAL.[14]

Continuation courses for physicians are presently thought to consist of planned activities for doctors of medicine now in practice intended to refresh physicians in various aspects of their basic medical education, to provide information on new developments in medicine, and to stimulate further educational efforts by the participants Such courses ordinarily do not lead either to credit toward graduate degrees or to credit toward fulfilling the educational requirements for specialty board certification. Postgraduate courses represent several different types of educational pattern

Best known, perhaps, is the "refresher" type of course that was so heavily in demand by physicians returning to civilian practice from the armed forces at the end of World War II Such a course, whether it be entirely refresher or offering all new material, may be defined as a carefully planned and scheduled educational program of relatively short duration as compared to a medical traineeship or a residency program A refresher course is offered in its entirety at the hospital, medical school, society, clinic, or cooperating institution and may be either continuous or intermittent An identical course except in location is the circuit course, which is an intermittent refresher course offered at several locations in the region on a regularly scheduled basis

Returns from the 1956 course questionnaires used to compile the current list indicated objection by a number of institutions to calling any of their courses "refresher courses," because so much of the material covered was new As a result, the term "refresher" was dropped from the current list in favor of purely time and place designations

Another type of course in which medical schools and other medical centers are becoming increasingly interested is the "medical traineeship," in which a few physicians at a time by arrangement with the department head concerned have a residency-type experience with participation in residents' conferences and ward rounds but usually without patient responsibility This experience may be of any duration There is usually a minimum period set by each institution offering this opportunity that may vary from two weeks to six months Usually there is a maximum duration of less than one year with the thought that a year or more of such continuous training could better be as a resident in an approved program The medical traineeship as a rule does not provide either housing or formal credit and generally does not involve night or emergency-room duty Only a very limited number of physicians can be taken into a single department at a time on this basis, which seriously limits the availability of this type of postgraduate course in any single institution There are other variations of course pattern, such as a correspondence course in the interpretation of electrocardiograms for those physicians who have already taken a primary course in this subject at the institution

In reporting postgraduate course activity in the past year, based on an analysis of the questionnaires and attendance returns from the sponsors, three factors have been introduced this year that alter the picture considerably compared with previous years First, the data encompass only a nine-month period (Sept 1, 1955, to June 1, 1956) rather than a calendar year, because of the early deadline required for publication of this report as well as because of a transfer in its printing to another city Second, the data presented are limited to the continental United States rather than also including Canada and Hawaii as in previous years, because of the seriously incomplete returns from outside the continental United States this year Third, some medical society meetings and assemblies that were called courses in previous years have been deleted from the analysis of courses for reasons previously stated All of these factors reduce the number of courses and their attendance, making it impossible to provide a meaningful comparison with either the number of courses or the attendance in previous years

The number of institutions and organizations offering courses in the nine months of 1955-1956 compared with those proposing to offer courses in the calendar year beginning Sept 1, 1956, is listed in table 29 This table does not represent a total picture of postgraduate medical education activities in the continental United States by the various types of institutions and organizations listed The table represents only the "course" type of program Other types of postgraduate programs are not represented in the table or in subsequent data

It should be noted that table 29 appears to represent less activity by medical societies in postgraduate courses than is actually the case This particularly applies to the academies of general practice Such societies often co-sponsor courses that actually take place at hospitals and medical schools In order to avoid duplication, such courses are attributed to the institution in which the course occurred rather than being credited to the co-sponsor The activity of hospitals in postgraduate courses in 1955-1956 is not completely represented in table 29 because all hospitals having approved internship and residency programs were not queried regarding postgraduate courses in 1955 as they were for the current 1956-1957 list

The number of courses, excluding medical society meetings, reportedly held in the continental United States in the nine-month period from Sept 1, 1955, to June 1, 1956, were 886, with a total physician attendance of 37,081 There were about an equal number of courses of less than five days' duration (439) and courses of five or more days' duration (417 courses)

The majority of courses (524 of 886) were designed for physicians both in general practice and in specialty practice The courses designed exclusively for physicians in general practice numbered 211, and the total of courses designed for physicians in full-time specialty practice was 149 Two courses did not specify for which group of physicians the course was designed So many of the sponsors did not supply attendance figure breakdowns as to the field of practice of the enrollees that such attendance figures are unknown for the year 1955-1956

Of the total courses for the nine-month period of 1955-1956, medical schools offered about half the courses and 36% of the hours If the courses offered by other organizations than hospitals, medical societies, and medical schools were not counted, 450, or 74%, of the remaining courses were offered by or in conjunction with medical schools, 74, or 12%, by hospitals, and 84, or 14%, by medical societies As was pointed out in the discussion of table 29, this does not provide an adequate view of the interest of medical societies because the frequent co-sponsorship of courses is not taken into consideration in such figures to avoid duplication of numbers of courses and hours

The non-university affiliated graduate and postgraduate schools provided 184 courses, or 20% of the total courses offered, containing 41% of the total instructional hours, but had only 1,696 or 4 5% of the total attendance

Educational methods vary significantly with the type of institution or organization offering the courses Purely passive methods consisting of lecture and demonstration courses, in which the physician enrolled is not participating except by his presence in the room, characterize courses offered by medical societies These methods are in the minority in the courses offered by hospitals The more active participative methods of instruction that include ward rounds, examination of patients, and group discussions were used in 84 7% of the postgraduate courses offered by hospitals, 59% of the courses offered by medical schools, and in only 22% of the courses offered by medical societies In this respect, hospitals seem to use their facilities effectively in more of their postgraduate courses than do some medical schools The hospitals here referred to are not the university or primary teaching hospitals of medical schools, for such medical school hospitals are attributed to medical schools in this study In view of their resources, it is not surprising that 90% of postgraduate courses offered by federal institutions used active methods of instruction

The lecture with or without lantern slides is the traditional and perhaps least effective method of instruction The size of the audience for a lecture is immaterial and may be in the hundreds or thousands Probably for this reason, it is favored at medical society meetings where large groups must be expected However, this method is assuming much less importance in the undergraduate curriculums of medical schools in favor of methods in which the student has a more active role Such methods include laboratory work for individuals and for small groups, project work by small groups, ward rounds and seminars for small groups, and the examination and presentation of patients by the students themselves These more participative methods of education require more instructors per unit of enrollment and are more expensive, as medical school administrators have discovered

Courses using more active teaching methods require more careful planning, and it is often necessary to limit the number of students enrolled in any one course using such methods Yet it has been found that these techniques are more effective in the education of undergraduate medical students They form the basis of all graduate education The present relative lack of their use in postgraduate medical education may be one of the problems in this field It is surprising that 41% of the postgraduate courses by medical schools in 1955-1956 used solely lectures, panels, and demonstrations as the methods of instruction Regarding subject matter, the most numerous courses were those in "general medicine" (134 courses), which usually covered topics in several fields of practice These courses had the greatest total attendance of physicians (19,748)

Attendance figures both for the past year (1955-1956) and for previous years are subject to so many variables that great caution should be used in drawing conclusions from such numbers What they actually represent is in any case questionable because of the different ways such figures are collected as well as the different possible realities they represent There is no way at present, for instance, of knowing whether an attendance of 100 for five courses by an institution means an enrollment of the same 20 physicians in the five courses, or whether it represents 100 different physicians each enrolled in one course At one institution reporting a not unusually large total attendance figure for all the courses, the attendance means neither enrollments nor actual attendance In that institution, each physician at each session signs his name to a sheet of paper and the total number of names is recorded by a clerk At the completion of the course, all the numbers representing attendance at each session are totaled to give the "attendance" for the course Although only 15 physicians were present, for instance, if they each attended all eight sessions of the course, the "attendance" would have been reported as 120

The significance of attendance figures to postgraduate course activity is further blurred if the registrations at some medical society meetings are counted in total attendance, as may have been done in some previous years The tens of thousands of physicians registering at medical society meetings can greatly swell total attendance figures, increasing the apparent interest in and attendance of postgraduate courses

It would seem desirable henceforth to request enrollments rather than attendance numbers, realizing that the first variable factor mentioned would still exist Information on the total number of physicians involved would still not be present Only a central registration of all course enrollments by each individual physician would secure that information

Most of the data so far secured on postgraduate medical education have been quantitative rather than qualitative Postgraduate medical education should be mature enough to begin to emphasize the quality of the experience as well as its quantity The success of great enterprises does not depend upon numbers alone, to paraphrase the expression of William Lloyd Garrison in "The Liberator"

MEDICAL EDUCATION AND NATIONAL DEFENSE

SELECTIVE SERVICE SYSTEM AND DEFERMENT ELIGIBILITY

The following information has been obtained from the chief medical officer of the Selective Service System National Headquarters, current to May 4, 1956 The responsibility for primary classification of registrants rests with Selective Service local boards If a person or his employer (college, medical school, or hospital) has requested his deferment and he has been classified as available for military service, the person or his employer may, within 10 days of the mailing of the notice of classification, file an appeal If the state appeal board should sustain the classification, the registrant or his employer may, if there is a dissenting vote in the appeal board, file a written request with the local board to have the decision appealed to the president of the National Selective Service Appeal Board If there is no dissenting vote, the state or national director of Selective Service may appeal the case to the President

The "college student certificate," SSS Form 109, continues to be prescribed for the use of institutions of higher learning, including those of medicine, in furnishing the local boards information regarding registrants who are enrolled as students in those institutions These forms should be submitted to the local boards by the educational institution on request of the registrant However, the mere filing of such a form does not constitute a request for occupational deferment, since, in order to establish the right of appeal as an interested party, a written request from the college or employer for occupational deferment must accompany the form The registrant has the right of appeal if exercised in the prescribed 10 days He may make his appeal informally in writing

Eligibility for Consideration for Deferment

The law empowers the President to provide for the deferment of any person whose deferment is equitable and in the national interest Furthermore, it is the sense of Congress that provision should be made for the annual deferment from training and service of premedical, predental, and allied preprofessional students in numbers equal to those at present (1950) in attendance at colleges and universities as outlined in the general student deferment program The President is also directed to establish a national advisory committee to advise the Selective Service System and to assist state and local advisory boards in selecting the needed medical, dental, and allied personnel

Sections 1622 15 and 1622 25 of the Selective Service Regulations specify the conditions under which students pursuing programs of higher education may be considered for deferment Within these specified requirements, students of the healing arts are considered for deferment in the same manner as students pursuing other undergraduate or graduate courses at colleges, universities, and similar schools

Any student not previously deferred who is pursuing a full-time course of study is entitled to a single period of statutory deferment, Class 1-S, until the end of the academic year Such deferment does not preclude the possibility of later deferment in Class 2-S Students whose activity in study, research, medical, or other endeavors is found necessary to maintenance of the national health, safety, or interest may be deferred in Class 2-S until completion of their college training, provided they maintain satisfactory scholastic records A student who is deferred for study extends his liability for military training and service up to his 35th birthday instead of his 26th, as prescribed for registrants who have never enjoyed a deferment

In selecting a student for deferment in Class 2-S, the Selective Service local boards may, at their discretion, be guided either by the score made by the student on the Selective Service College Qualification Test or by his record of academic performance The college qualification test is given for the Selective Service System by the Science Research Associates, Inc , of Chicago At present, in order to be eligible for deferment on the basis of this test, an undergraduate student must make a score of 70 or more SSS Form 108 has been prescribed for furnishing to the local board the score made on this test This score is confidential and may be divulged by the local board only to the registrant or to one holding his written consent

To qualify for deferment on the basis of academic performance, the nonprofessional student must have maintained the following standing among the male members of his class freshman year, upper one-half, sophomore year, upper two-thirds, and junior year, upper three-fourths A student accepted for admission to medical school after July 1, 1951, for the class next commencing may be deferred, provided that, during his last full-time year at a college or university, he was ranked among the upper one-half of the male members of his class or had a score of 70 or more on the Selective Service College Qualification Test

A student accepted for admission by a graduate school after July 1, 1951, as a full-time student for the class next commencing may be deferred provided that, in his last full-time academic year in a college or university, he achieved a scholarship standing among the upper one-fourth of the male members of his class or scored 80 or more on the qualification test and provided that the graduate school certifies that he is meeting the degree requirements Decisions concerning deferment of American students enrolled in foreign universities, including medical students, are the responsibility of the local boards The local board may accept or reject any claims or evidence presented for deferment

Status of Interns and Residents

The Selective Service System has always recommended the deferment of graduates of medicine to complete one year of internship training Recently, and in order to prevent calling men of priority 3 who are in the higher age brackets, Selective Service has stated that men, to be given favorable consideration for deferment to complete a residency or more than one year of internship, should be absolutely essential to the operation or maintenance of the hospitals where they are employed or that they be among those selected by the Assistant Secretary of Defense (Health and Medical) and recommended for specialty training necessary in the staffing of the hospitals of the armed forces The Selective Service System is of the opinion that there is a sufficient number of young physicians who have satisfied their military liability or who are physically disqualified for military service to satisfy the requirements of the hospitals for residents and to provide for specialty training for civilian needs

Selective Service has agreed to recommend to the Selective Service local boards the continued deferment for the second year of residency training through fiscal 1957 of 300 residents (less normal attrition) who were deferred for the first year of residency training during the fiscal year 1956 and, in addition, will recommend the deferment of 900 during fiscal 1957 These 900 would be 500 from the graduating class of 1955, who will finish their internship in 1956, and 400 from wherever the Assistant Secretary of Defense may select them It is expected that this program will be continued from year to year after the expiration of the special provisions of the Universal Military Training and Service Act The numbers to be recommended for deferment would be determined year by year

All young physicians participating in this program are to be commissioned in the reserve component of one of the armed forces, and they are to be selected by the Assistant Secretary of Defense (Health and Medical) for such training The request for deferment is to pass from the individual to the Assistant Secretary of Defense (Health and Medical) and then, if recommended, will be forwarded through national headquarters of the Selective Service System to the respective local boards of that system

The National Advisory Committee to the Selective Service System has indicated that all physicians in priority 1 and priority 2 and those in priority 3 born after Aug 30, 1922, will be needed by the armed forces and has advised that they apply for commissions about the time of completion of their internships A few persons in these categories may be recommended for deferment by the Selective Service local boards for teaching, research, or public health or because they are rendering essential service in isolated communities and cannot be replaced

In addition, the only persons in this group who can justifiably be recommended for deferment are those who are accepted for training in the scarcity specialties and whose services are required to meet the essential needs of medical and dental schools or hospital services The specialties in which critical shortages exist are anesthesiology, physical medicine and rehabilitation, psychiatry, radiology, neurology, pathology, public health, orthopedic surgery, oral surgery, and the basic medical sciences Those few persons in these groups for whom deferment is necessary may be deferred in Class 2-A by the Selective Service local boards The recommendation of the advisory groups in all such cases is desirable

Status of Faculty Members

Since the majority of the faculty members of medical schools are under 50 years of age, they are required to register with the Selective Service System as indicated under Public Law 779 No policy has been announced by the Selective Service System on the granting of deferment to faculty members, except that recently teachers of medicine have been mentioned in a Selective Service operations bulletin as being in a critical occupation to which local boards should give special consideration The National Advisory Committee has recommended that, as a general policy, essential members of medical, dental, and veterinary faculties be held in their teaching positions until such time as replacements are found This recommendation applies especially to persons in the basic science departments and includes persons in priorities 1 and 2 This policy is not a blanket recommendation for deferment from military service for all teachers Part-time teachers, who devote only a small portion of their time to teaching, and certain of the younger full-time teachers in priorities 1 and 2 will be expected to enter the military services

Current Status of the "Doctor-Draft" Law

The "Doctor-Draft" law was first approved Sept 9, 1950, as Public Law 779, 81st Congress an amendment to the Universal Military Training and Service Act It has subsequently been amended by Public Law 84, 83rd Congress, approved June 19, 1953, Public Law 403, 83rd Congress, approved June 18, 1954, and Public Law 118, 84th Congress, approved June 30, 1955 These amendments, which have been included as Section 4(i) of the Universal Military Training and Service Act, are known as the "Doctor-Draft" law

The effective date of the Universal Military Training and Service Act, as now amended, is extended to July 1, 1959, while that part pertaining to the registration and induction of physicians, dentists, and allied specialists ("Doctor-Draft" law) is extended to July 1, 1957 No change was made in the age limit prescribed in the previous amendments, which required that all physicians, dentists, and allied specialists under the age of 50 must register with the Selective Service System local boards when required to do so by the proclamation of the President. Therefore, all new medical graduates under the age of 50 must register with their Selective Service local boards as physicians, regardless of any previous registration, within five days of the receipt of the degree of doctor of medicine, provided they do not hold a commission in an armed forces reserve component However, Public Law 118, of the 84th Congress, did relieve any physician who had attained the 46th anniversary of his birth from liability of induction When the degree is not granted by the school until completion of an internship, this special registration is accordingly deferred

As under previous provisions of the act, registrants will be arranged in four priorities signifying the order of induction However, the criteria for such an arrangement under these priorities have been modified The major changes enacted by the new amendments are those that provide for greater recognition of prior military service A registrant will now receive credit for all service performed as either an officer or an enlisted man since Sept 16, 1940, regardless of whether it was before or after participation in an AST or V-12 program, or deferment by the Selective Service System for professional education prior to March 31, 1947 Also recognition is given for military service performed in the armed services of a country allied with the United States prior to Sept 2, 1945, while so allied

Whereas, formerly physicians who were educated in part or in whole at government expense or who were deferred by the Selective Service System while completing their professional education needed 21 months of service to qualify for assignment in priority 4, they now need only 17 months As a result of this change, a number of physicians formerly in priorities 1 and 2 have been reassigned in priority 4 The periods of service for men called to active duty or inducted under the new law were also revised Those with 9 months or less of service must serve 24 months Those with 9 to 12 months will serve 21 months Those with 12 to 15 months' service will serve 18 months and those with 15 to 21 months will serve 15 months Those physicians in priority 4 who have had 21 months or more of service since Sept 16, 1940, are not liable to induction or recall, except in time of war or national emergency declared by Congress

"Active service" and "active duty" are defined as full-time duty since Sept 16, 1940, in the service of the United States Army, Navy, Air Force, Marine Corps, Coast Guard, or Public Health Service, including reserve components, time spent during World War II by conscientious objectors in work of national importance, service performed before Sept. 2, 1945, in the armed forces of countries that were allies of the United States during World War II, and service performed as a physician or dentist for the Panama Canal Health Department between Sept 16, 1940, and Sept 2, 1945

Specifically excluded from consideration as "active service" is time spent in V-12 or AST programs in military internships, residencies, or senior student programs, time spent in military service for the sole purpose of undergoing physical examination, and training entered into after June 29, 1953 The law continues to permit deferment of those persons whose activities are essential to the national health, safety, or interest

It is the duty of the National Advisory Committee and the voluntary state and local committees of the Selective Service System to make recommendations to the Selective Service System concerning the essentiality or availability of special registrants who are being classified by their local boards This duty includes recommendations concerning residents, faculty members, and those engaged in essential laboratory and clinical research

Public Law 403, approved June 18, 1954, amended the so-called "Doctor-Draft" law and makes it possible for the armed forces to return to duty, but in enlisted status, persons serving under the "Doctor-Draft" law whose loyalty is questioned or for security reasons This amendment, therefore, removed the mandatory requirement of Public Law 84 that physicians and dentists be given commissions

The latest amendment, Public Law 118, 84th Congress, provides that if any physician special registrant, after attaining the 35th anniversary of the date of his birth, applies or has applied for a commission in one of the armed forces as such and is or has been rejected for commission on the sole grounds of physical disqualification, he is not liable for induction

MEDICAL EDUCATION FOR NATIONAL DEFENSE

The following information on the current status of Medical Education for National Defense has been obtained from the national coordinator of this project The program of Medical Education for National Defense (MEND) is now active in 25 of the American colleges of medicine and a number of others are on the waiting list for affiliation The 25 colleges are as follows Baylor, Buffalo, California (San Francisco), California (Los Angeles), Cornell, Colorado, Duke, Emory, Georgetown, Illinois, Kansas, Louisiana State, New York University, Maryland, Michigan, Ohio State, Pennsylvania, Pittsburgh, Temple, Tufts, Vanderbilt, Medical College of Virginia, Washington (Seattle), Washington U (St Louis), and Wisconsin

MEND is a function of the Joint Committee on Medical Education in Time of National Emergency, representing the Council on Medical Education and Hospitals of the A M A and the Association of American Medical Colleges MEND's program has been endorsed by both parent organizations as well as by the medical officials of the Department of Defense, the U S Public Health Service, and the Federal Civil Defense Administration

The purpose of the program is to encourage the teaching of principles of military and disaster medicine by regular faculty members of our medical colleges Nothing is mandatory, each faculty is free to accept or reject any part of the program not consistent with the local philosophy of medical education All emphasis is on medical rather than military topics It is hoped that the problem of national preparedness in medical education can be solved by interested faculty members on a local basis and under local control rather than through such methods as the establishment of a federal medical school or through direct federal intervention in curricular content

During 1955-1956 MEND sponsored the following activities (1) Symposium on Aviation Medicine, Randolph Air Force Base, attendance 67, (2) Symposium on Infectious Disease Problems, Great Lakes Naval Training Center, attendance 70, (3) Symposium on Radiobiology, Walter Reed Army Institute of Research, attendance 127, and (4) Deans' and Coordinators' Orientation Tour attended by 45 to Army, Navy, Air Force, and Public Health Service facilities

Activities at the 25 colleges included special lectures, conferences, and demonstrations in the following subjects surgery of trauma, wound ballistics, war wounds, radiobiology, defense measures to chemical and biological warfare, aviation medicine, management of mass casualties, civil defense responsibility of the medical profession, infectious disease problems in disaster situations, and others The national coordinator of MEND has an office at the Bureau of Medicine and Surgery, Department of the Navy, Potomac Annex, Washington 25, D C

ARMY, NAVY, AND AIR FORCE PROCUREMENT PROGRAM

The following information summarizing the Army, Navy, and Air Force procurement programs has been obtained from the office of the Assistant Secretary of Defense (Health and Medical), current to June 13, 1956

Army

EARLY COMMISSIONING PROGRAM FOR MEDICAL STUDENTS

Medical students may apply for a commission in the grade of second lieutenant, MSC-USAR, for inactive duty without pay and allowances while attending medical school Students participating in this program will be obligated to accept superseding appointments in the grade of first lieutenant, MC-USAR, upon graduation, and to serve on duty for a period of two years upon completion of internship, if applicable Persons appointed under this program will be assigned to Ready Reserve units in appropriate MC vacancies in TOE and TD troop program units, USAR schools, and USAR Control Groups (Annual Training)

CLINICAL CLERKSHIP TRAINING PROGRAM

Participants in the Clinical Clerkship Training Program will be medical students at the junior-senior level, who have indicated their interest in the Army medical service and who now hold appointments in the MSC-USAR, as either second or first lieutenants, or will be commissioned in sufficient time to participate in the program A limited number may also participate in the program as "student employees" under Civil Service Students who participate in the program in officer status must volunteer to perform 45 days of active duty for training (42 days—6 weeks for training and 3 days for travel) Students assigned to USAR Control Group (Annual Training) will fulfill their annual requirements for active Reserve participation by performing the above 45 days of active duty for training Students who are assigned to a TOE or TD Reserve unit or a USAR School will perform the 45 days of active duty for training "in lieu of" the "summer camp" requirement with their unit The program will consist of six weeks' instruction at Army teaching hospitals, which will be divided into one week of military instruction, and two 2½-week periods, one embracing internal medicine and its subspecialties and the other embracing surgery and its subspecialties

SENIOR MEDICAL STUDENT PROGRAM

Students selected for participation in the Senior Medical Student Program will be commissioned as second lieutenants, MSC-USAR, and will be permitted to continue their studies in their respective schools as officers on active duty with full pay and allowances until they complete their academic requirements for the degree of doctor of medicine Upon completion of their medical education, selected students will be required to accept appointment in the grade of first lieutenant, MC-USAR, they must agree to participate in the National Intern Matching Program, Incorporated, and serve three years on active duty immediately following their civilian and military internship This includes the obligated time under the Universal Military Training and Service Act, if applicable Participants who are not matched for an Army internship will be released from active duty for one year to allow them to complete a civilian internship, and they will then be recalled to active duty for three years at the end of that 12-month period

MILITARY INTERN PROGRAM

Selected graduates of approved medical schools will be commissioned as first lieutenants, MC-USAR, and will be ordered to active duty for the purpose of completing a 12-month internship in a military hospital Individuals participating in the program will not incur obligatory service, however, those individuals who will be liable for military service under the provision of any law will be required to serve that obligation immediately upon completion of their internship

The Ensign, 1995 (Medical) USNR Program

After passage of the Selective Service Act of 1940, many medical students who were obligated for military service by the act indicated their desire to affiliate with the Naval Reserve in order to assure that their period of active duty would be with the Navy s Medical Department To make this possible and to provide deferment from active duty until graduation, the Ensign, Probationary (Medical) Program was established before the onset of World War II The first appointments late in 1941 were limited to third-and-fourth-year medical students attending class "A" (approved) medical schools Within a few months, however, the program was expanded to include first-and-second-year medical students, and it has since come to be known as the Ensign, 1995 (Medical) Program

The number 1995" is a designator used to identify officers within the Department of the Navy by a code system The first three digits, 199, indicate that the officer is under instruction in a civilian school, the last digit, 5, indicates an officer of the Naval Reserve Thus 1995 followed by (Medical) refers to an officer of the Naval Reserve with the rank of ensign under instruction in an accredited medical school

The qualifications for appointment as Ensign, 1995 are as follows

A Sex—men and women

B Age

(1) Men and women with no prior military service should be at least 19 and of such age that upon expected date of graduation they will be under 33 The maximum age limit for men and women with prior active military service may be adjusted on a month for-month basis depending upon the number of months of active military service performed but in no case to exceed 36 months Applications cannot be accepted from any person who will have passed his 36th birthday when he becomes eligible for superseding appointment in the grade of Lieutenant (junior grade) following graduation from medical school

C Educational

(1) Should be within 120 days of completion of all academic work required for enrollment in medical school

(2) Should be in attendance or have been accepted for and be within six months or less of the date of the next entering class at one of the American or certain of the Canadian medical schools accredited by the Council on Medical Education and Hospitals of the American Medical Association, including approved schools of the basic medical sciences in the United States and Canada Applications cannot be accepted from students who will attend a medical school in a foreign country other than Canada Appointment of students who will attend a Canadian school will depend upon the proximity of the school to an Office of Naval Officer Procurement

(3) Should NOT have commenced the final year of medical school

D Professional

(1) Applicants are required to establish professional fitness and aptitude for the naval service through interviews and a review of college and employment records

E Physical Standards

(1) Should be found physically qualified for appointment to commissioned status in accordance with established regulations

The primary objectives of this program are to provide (1) an opportunity for qualified medical students to affiliate with the Naval Reserve as commissioned officers while still in medical school, (2) assurance that these officers will be able to complete their medical studies and internship prior to fulfilling their obligation for active military duty, (3) assurance that when they do enter the service, it will be with the Navy s Medical Department, and (4) a primary source of qualified candidates for the Naval Intern Program and for the Medical Corps of the Navy and Naval Reserve

As an added incentive for membership in the Ensign, 1995 Program, there has been established a 60-day active duty research clerkship training program at naval research activities throughout the United States This program provides orientation and indoctrination into medical research as well as on-the-job training for the undergraduate medical student during his vacation from medical school Full pay and allowances are authorized for these officers while so serving on active duty Medical students who are commissioned as Ensign, 1995 (Medical) USNR and who have successfully completed the first year of medical school are eligible to participate in this program Research clerkships offer a detailed review of the specific research program being conducted at the training activity A part of the training is spent in each research department, and the trainee serves as an assistant in actual laboratory research on a specific project under way at that time

Present planning includes offering midshipman cruises during the summer vacation months for the undergraduate medical student commissioned as Ensign, 1995

Also established are clinical clerkships at naval teaching hospitals throughout the United States Beginning 1 July of each year, this program offers the medical student who has completed his second year of medical school 60 days of active duty for training during his vacation from medical school Clinical clerkships are planned to provide indoctrination and orientation into naval medicine, rotation through the major professional services of a naval teaching hospital, and performance of on-the-job training duties commensurate with the individual's professional attainments

To assist the medical student financially, and to attract future doctors of medicine toward a career in the Navy Medical Corps, the Active Duty Senior Medical Student Program was authorized by the Secretary of the Navy last year To be eligible for participation, the individual student must be an Ensign, 1995 (Medical) USNR, or agree to accept such an appointment if selected Further, he must have completed his third year of medical school and be eligible for enrollment in the ensuing year During attendance in medical school, these officers serve on active duty, receiving the full pay and allowances of their rank In return for participation in this program, the individual serves one year plus the 24 months obligated by the Universal Military Training and Service Act, as amended

Here are some important facts concerning the Senior Medical Student Program

(1) This program is open to qualified students enrolled at medical schools accredited by the Council on Medical Education and Hospitals of the American Medical Association Students who have completed their second year of medical school may make application for this training at an Office of Naval Officer Procurement Active duty commences and continues while in attendance during their senior academic year To be eligible for participation, he must be an Ensign, 1995 (Medical) U S Naval Reserve, or agree to accept such an appointment if selected A board convened in the Bureau of Medicine and Surgery selects the candidates for participation in this program

(2) Physical standards of this program are the same as those established for Regular Navy staff corps officers

(3) Active duty orders are mailed to the student via the Professor of Naval Science or the District Commandant Active duty commences upon receipt of such orders and completion of proper reporting endorsements

(4) The student agrees, in writing, to accept a Regular Navy commission, and if a Regular Navy commission is not tendered, to accept an appointment in the Naval Reserve

(5) In accepting an appointment in the Regular Navy or Naval Reserve, as a result of having active service in the Senior Medical Student Program as an Ensign, 1995, he is obligated to serve on active duty and to retain the commission for a period of three years This active service will commence upon completion of not more than twelve months of a civilian or Naval Internship Providing that the student has twenty-four months obligated military service to perform, this active duty affords a splendid opportunity to discharge the military obligation and serve an additional year in return for the benefits received in the Senior Medical Student Program With no obligated military service to perform, upon enrollment in the Senior Medical Student Program, the student obligates himself to retain his commission for the same period of three years

(6) As a medical student, he receives the full pay and allowances of an Ensign, 1995, while so enrolled on active duty Pay and allowances are based on longevity as follows

a Less than two years and no dependents, he receives $338 58 per month, with dependents, (a member of his family or household dependent upon him for financial support) he receives $355 68 per month

b Over two but less than three years and no dependents, he receives $353 40 per month, with dependents, he receives $370 50 per month

c Over three but less than six years and no dependents, he receives $412 68 per month, with dependents, he receives $445 38 per month

(7) In addition to the pay and allowances, the student is credited with two and one-half days of annual leave for each thirty days of active duty served

(8) The wearing of the naval uniform is permitted only when authorized by appropriate naval authority

(9) Timing is very important An average of four months is required to completely process each application 1 February each year is the absolute deadline that completed applications must be forwarded to the Bureau of Naval Personnel, Navy Department, Washington, D C This is necessary so that sufficient time is given to the board in the Bureau of Medicine and Surgery to pass on the professional qualifications, and the board in the Bureau of Naval Personnel to pass on the overall qualifications of each applicant Those selected are required to meet the moral, mental, and physical standards of Navy acceptance All applicants will be notified by individual letter of their acceptance or rejection not later than the first week in May

(10) Upon completion of the sophomore year of medical school, the student desiring to enroll in the Senior Medical Student Program should make application at the nearest Office of Naval Officer Procurement located in the following cities

ALBANY 1, New York
BOSTON 9, Massachusetts
BUTTE, Montana
CINCINNATI 2, Ohio
DENVER 2, Colorado
DETROIT 26, Michigan
LOS ANGELES 17, California
MINNEAPOLIS 1, Minnesota
RALEIGH, North Carolina
SALT LAKE CITY, Utah
SEATTLE 1, Washington
PHILADELPHIA 7, Pennsylvania
NEW ORLEANS 16, Louisiana
ALBUQUERQUE, New Mexico
BUFFALO 3, New York
CHICAGO 11, Illinois
DALLAS 2, Texas
HOUSTON 2, Texas
KANSAS CITY, Missouri
MACON, Georgia
NASHVILLE, Tennessee
ST LOUIS 1, Missouri
SAN FRANCISCO 2, California
WASHINGTON 25, D C
PITTSBURGH 19, Pennsylvania
OMAHA 11, Nebraska

Air Force

The Air Force is presently sponsoring training programs for juniors and seniors in medical schools, as well as internships and residencies in both civilian and military hospitals Applicants must be United States citizens, be morally, physically, and educationally qualified, and must not be nor have been conscientious objectors Eligibility varies with each program according to the applicant's age

THE JUNIOR AND SENIOR MEDICAL STUDENT PROGRAMS

The Junior Medical Student Program is presently a "pilot study" program, offered only by the Air Force, for 200 medical students beginning their junior year in September, 1956 Selections are made on the basis of scholastic standing and military aptitude and inclination Applications were closed as of March 1, 1956, and those selected will be appointed as second lieutenant, Air Force Reserve (MS), effective on matriculation day, and placed on extended active duty at medical school They are required upon graduation to accept reappointment as first lieutenant, Air Force Reserve (Medical) and apply for participation in the Air Force Sponsored Intern Training Programs (either military or civilian) If matched to the Air Force for military internship, or selected for Air Force-sponsored civilian internship they will remain on active service If not, they will be released from active duty for a year for a nonsponsored civilian internship and then recalled to active duty to complete their period of four years' obligated service incurred for their training This time will include any obligation they might have under the Universal Military Training and Service Act

The Senior Medical Student Program is a continuing program offered by each of the three services to 200 students in their senior year, beginning in September, 1956 Applications for this program also closed March 1, 1956 Those selected will also receive commissions, effective on matriculation day, as second lieutenant, Air Force Reserve (MS) and must also agree to accept reappointment as first lieutenant, Air Force Reserve (Medical) upon graduation and apply for internship under the terms described above for junior medical students However, the period of obligated service for sponsored seniors is one year less than that for sponsored juniors

AIR FORCE SPONSORED INTERNSHIPS, CIVILIAN AND MILITARY

The Air Force Intern Training Program, begun in 1950, is designed as a regular officer procurement program Each year the Air Force sponsors 60 applicants in military internship selected through the National Intern Matching Program and also sponsors 100 interns in approved civilian hospitals To be accepted, applicants must meet general eligibility requirements stated above, must not be more than 32 years of age, and must be graduates of medical schools acceptable to the surgeon general

Selection for civilian internships is made periodically by the Office of the Surgeon General on the basis of scholastic standing, physical fitness, and military aptitude and inclination Applications for sponsored civilian intern training beginning July 1 are closed as of April 1 each year, closing date for applications for training beginning on "off-term' dates is announced by letter annually For military internships, applications must be submitted not later than the first week of January Those selected are appointed effective the date of graduation from medical school as first lieutenant, Air Force Reserve (Medical) Military interns incur a minimum period of obligated service of 24 months and civilian interns, 36 months, regardless of their Selective Service classification However, their military service obligation under the Universal Military Training and Service Act, as amended, will be discharged concurrently with this service

Civilian interns are assigned to the hospital at which they have obtained an approved internship Since the program is designed to cover the normal one-year internships, students who have accepted appointments to internships longer than 12 months are not favorably considered for this program (They may not accept any remuneration from the hospital.)

Military interns are not assured assignment in any specific military hospital, but almost all are assigned according to their first, second, or third choice Military internships are of the general rotating type so that applicants gain appropriate experience in various fields of medicine Training is directed by military and civilian physicians and includes a wide range of clinical material, utilizing modern medical, surgical, and radiological facilities It provides for one year of formal training in accordance with the requirements of the Council on Medical Education and Hospitals of the American Medical Association and is followed by two years of general medical duty in Air Force installations

RESIDENCY TRAINING PROGRAM

The Air Force residency training program, limited to members of the Regular Air Force, is conducted in both military and civilian hospitals (including nonmilitary govenment hospitals) For the year beginning July 1, 1956, the Air Force programmed for 300 training spaces in civilian hospitals and 82 in military hospitals (It is anticipated that the latter number will be increased for residencies beginning July 1, 1957) Physicians who enter this program are expected to remain in training until they have completed the minimum formal training requirements of the specialty boards Interns selected for this training may enter directly from their internships without interruption if their applications are submitted in time To be accepted, they must qualify for a Regular Air Force commission, must be a graduate of an accredited medical school, and must have completed a minimum of one year of internship in an approved hospital Applications for residency training and a regular commission may be submitted simultaneously and may be submitted at any time after completion of three months of internship For each year of sponsored training in a military hospital, the period of obligated service incurred is one year, in civilian hospitals, the obligation is two years for the first year of training and one year for each additional year Air Force–sponsored interns who undertake a combined internship-residency program will be required to serve only one year of obligated service in repayment for one year of internship, military or civilian, when they successfully complete the minimum formal training requirements of a medical specialty board, if the residency is three or more years duration If the residency is for two years, the obligated service time for internship will be reduced only one year (i e , to two years for civilian interns and one year for military)

Air Force residency training is available in all recognized medical specialties, including allergy, anesthesiology, aviation medicine, cardiology, dermatology and syphilology, gastroenterology, general practice, general surgery, internal medicine, neurology, neurosurgery, obstetrics and gynecology, occupational medicine, opthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, physical medicine, preventive medicine psychiatry, pulmonary diseases, radiology, thoracic surgery, and urology

The Aviation Medicine Specialty Training Program, leading to board certification in Aviation Medicine, is a comprehensive program of five years duration Applicants must be graduates of the Primary Course of Aviation Medicine and have had a minimum of nine months practice as an Aviation Medical Examiner Applicants must be physically and professionally qualified and be no more than 34 years of age when the class convenes Applications must arrive at Headquarters USAF not later than Feb 1 for the program beginning in September

ROLE OF VETERANS ADMINISTRATION HOSPITALS IN UNDERGRADUATE MEDICAL EDUCATION

The following information has been obtained from the department of medicine and surgery of the Veterans Administration and presents a general résumé of the role of Veterans Administration hospitals in undergraduate medical education In those VA hospitals associated with medical schools through a dean s committee relationship, the facilities of the Education and Training Program are available to undergraduate medical students At the present time an organized cooperative program of clinical clerkships exists in 54 VA hospitals associated with 60 medical schools

Approximately half of recent medical school graduates have had undergraduate experience in VA hospitals During 1954-1955, 3,903 clinical clerks served on the various services in VA hospitals under the supervision of the house staff, full-time staff, and visiting faculty of the cooperating medical schools On Jan 1, 1956, 2,746 students were serving clerkships

While the great majority of clerkships were served in general medical and surgical hospitals, clerkships also existed in eight hospitals for neurology and psychiatry and three hospitals for tuberculosis VA hospitals were conducting medical clerkships with approximately 35 medical schools, surgical clerkships with approximately 30 medical schools, clerkships in neurology and psychiatry with approximately 15 medical schools, and clerkships in tuberculosis with 3 medical schools The clerkship year falls in either the third or fourth undergraduate year in approximately an equal number of the 60 medical schools, although from 15 schools clerkships were supported in both the third and fourth years Twenty-two medical schools had programs so organized that 100% of either the third or fourth year class served a clerkship in a VA hospital

While not normally considered as a clinical clerk, second year medical students have been assigned to VA hospitals, predominantly for instruction in physical diagnosis, in 30 instances, 11 medical schools sent 100% of their second year classes to VA hospitals for this type of instruction

All formal and informal educational activities are available to clinical clerks in VA hospitals, including ward rounds, clinical pathological conferences, journal clubs, specialty conferences, meetings of therapeutic boards, tumor boards, etc All VA hospitals allow medical students free use of their medical libraries An [illegible] medical school assigns clinical clerks [illegible] t the calendar year, although the great [illegible] restrict their activities to the school year

[illegible] rkships for undergraduate medical education are [illegible] coming extremely popular with medical students [illegible] ecause of the fact that the great majority of VA hospitals conduct residency training programs without parallel internship programs In such situations the medical student is not in competition with interns for the guidance and supervision of the hospital staff The presence of clinical clerkships explains in large part the success of VA residency training programs in the absence of internships While clinical clerks in no sense serve as "substitute interns," they nevertheless provide a valuable stimulus to the resident staff for whom teaching and supervising younger men is an essential requisite

The full-time staff and resident staff of VA hospitals are enthusiastic in cooperating with medical schools in the conduct of undergraduate teaching programs, since such activity further bolsters the academic atmosphere established in those hospitals associated with medical schools for purposes of graduate medical education

GRANTS AND FELLOWSHIP PROGRAMS OF THE UNITED STATES PUBLIC HEALTH SERVICE

The Public Health Service grants and fellowships programs aid in the advancement of medical knowledge in the nation's research institutions by supporting research and training activities in the health, medical, and related sciences The scope of these programs has increased tremendously during the past decade, giving impetus to the search for the basic causes underlying disease conditions and the development of more effective methods for diagnosis and treatment The programs continue to encourage research interest in needed areas of investigation and to provide an opportunity for increasing America's supply of competently trained scientific personnel

The National Institutes of Health, the research center of the Public Health Service, spends approximately two-thirds of its yearly appropriations for support of these grants and fellowships The programs are administered by the Division of Research Grants in connection with each of the seven institutes of the National Institutes of Health, and other Public Health Service divisions The National Institutes of Health sponsors a wide range of medical and biological investigations, including such specific categories as heart disease, cancer, mental disorders, neurological diseases and blindness, arthritis and metabolic diseases, dental diseases, and allergy and infectious diseases Recognition of the importance of these programs to medical progress is reflected by the increased appropriations that Congress has allocated for this purpose during the past several years, as shown in table 30

TABLE 30—*National Institutes of Health Appropriations for Grants and Awards to Nonfederal Institutions, Agencies, and Individuals for the Fiscal Years 1945-1957*

Year	Research Fellowships	Training Awards	Research Grants
1945	$ 28 000	$ 29 000	$ 85 030
1946	44 000	25 000	780 158
1947	178 000	250 000	3,670 198
1948	520 000	2 809,700	9,145 000
1949	1 115 000	3 930 000	10 871,492
1950	1 448,057	6 415 000	13 005 514
1951	1,565 000	6,928 200	16 713 000
1952	1,755 000	7,302 000	18 173 000
1953	2 024 000	8 194 000	20 374 000
1954	2 133 000	10,813 000	28 866 000
1955	2,562 000	11,051 000	33 018 000
1956	2,800 000	14,502 000	38 038 000
1957	5,397,000	28 075 000	89 697 000

Research Fellowships

A new senior research fellowship category was instituted in July, 1956, intended to assist in developing individuals who are competent in basic preclinical sciences research, and concurrently to strengthen such research areas The areas of interest in this program are anatomy, physiology, biochemistry, microbiology, pharmacology, pathology, biophysics, genetics, and the behavioral sciences The National Institutes of Health will provide a number of such senior research fellowship awards to support investigators during the period between the completion of training, that is, two or more years beyond the doctoral degree, and eligibility for permanent higher academic appointments This fellowship category is in addition to the four classes of fellowship awards regularly available—predoctoral, postdoctoral, special, and the student part-time research fellowship—all of which are awarded to encourage and increase the supply of American scientists primarily interested in and qualified to carry on research in medical and allied fields

Applications for the new senior research fellowships may be made by medical schools, dental schools, and schools of public health Each school may submit not more than three applications in any one year Selections will be made annually on the basis of a review by a selection committee of nongovernmental scientists and by the National Advisory Health Council The award, which may be activated on the first day of any month subsequent to approval, will provide salary at the level requested by the applicant school, not to exceed $10,000, plus other partial research expenses, not to exceed $2,000 a year for each fellow It is planned to assure five years of support for such research fellows, provided the Congress continues to appropriate the necessary funds for each year

To provide flexibility in the administration of these senior research fellowships, the fellows will be free to modify their research approach, within the general confines of the preclinical science areas selected They will be permitted also to conduct a portion of their research work in other institutions, and they may apply to the Public Health Service or any other agency or foundation for additional research grant support if needed It is expected that institutions will assign appropriate formal teaching responsibilities to these fellows in order that they may attain a well-rounded productive career

In addition to this new category, a substantially increased demand is anticipated in the four types of fellowships regularly awarded Three of these four classes (predoctoral, postdoctoral, and special fellowships) are made to individual applicants and the fourth (student part-time research fellowships) to schools of medicine, dentistry, nursing, and public health, which make their own selections of student part-time fellows The predoctoral research fellowship is awarded to candidates (U S citizens) having a bachelors degree or equivalent training to enable them to pursue studies oriented toward graduate training in research related to the health sciences The basic stipend for predoctoral fellowships is from $1,400 to $1,800, plus additional dependency allowances The postdoctoral research fellowship, which is awarded to candidates holding a degree equivalent to an M D, Ph D, or D D S, carries a stipend of $3,400 for the first year, $3,700 for the second, and $4,000 for the third year, plus dependency allowances The special research fellowship requires a doctors degree in medicine, dentistry, or related fields or unusual competence in or specialized training for research The stipend for this fellowship is determined at the time of the award The fourth type, the student part-time research fellowship, was initiated in 1952 with grants for this purpose to medical and dental schools Recently, it has been expanded to include schools of public health and nursing schools, in an effort to encourage students in all these fields toward a research career Medical schools may request up to eight units of $400 each, dental schools, up to six units, and schools of public health and nursing schools, up to four units Each unit may provide for part-time research during the school term or for full-time research for two months during any time when curriculum work is not scheduled for the student. Predoctoral, postdoctoral, and special fellowships are awarded on a competitive basis upon the recommendation of scientific committees of the National Institutes of Health (Additional information or application forms for fellowships may be obtained from the Division of Research Grants, National Institutes of Health, Bethesda 14, Md)

Training Grants

The information that continually emerges from fundamental studies cannot be readily applied at the clinical level because of the lack of competent personnel trained for careers in clinical investigation The Public Health Service training grants program is intended to augment the nation's supply of qualified clinical personnel by assisting in the establishment, expansion, and improvement of training and instructional programs in professional institutions

Undergraduate training grants are awarded by the National Cancer Institute, the National Heart Institute, and the National Institute of Mental Health The specific purposes of these grants are to establish, expand, improve, or continue instruction relating to the prevention, diagnosis, and treatment of cancer, cardiovascular disease and related gerontological conditions, and mental disease Grants are made to schools of medicine, nursing, dentistry, and public health, ranging from $5,000 to $25,000 for a one-year period

Graduate training grants are awarded by the National Heart Institute, the National Institute of Arthritis and Metabolic Diseases, the National Institute of Dental Research, the National Institute of Mental Health, and the National Institute of Neurological Diseases and Blindness The purpose of these grants is to assist the schools in establishing and maintaining a high caliber of graduate instructional programs or to establish, expand, and improve graduate training programs in the departments concerned, as well as to make funds available for trainees' stipends All programs supported by training grant funds must be under the specific direction of a designated program director

Traineeships

Traineeships are also awarded directly to American citizens having a doctoral degree in health fields, including related biological and behavioral sciences, through the National Cancer Institute, National Heart Institute, National Institute of Arthritis and Metabolic Diseases, and the National Institute of Neurological Diseases and Blindness These traineeship awards are intended to increase the number of trained clinical investigators by encouraging medical personnel of known competence to take additional training in highly specialized areas of clinical investigation Examples of areas of interest are the neurological diseases, ophthalmology, and senory diseases, cardiovascular diseases, arthritis, diabetes, and other metabolic diseases, and the diagnosis and treatment of cancer Two types of traineeships are available The regular traineeship carries a first-year stipend of $3,400, a second-year at $3,700, and a third-year at $4,000, plus dependency allowances Special traineeships are awarded to qualified individuals who possess unusual competence for training or require specialized training for a specific problem (Application forms for training grants and traineeships are obtainable on request to the appropriate institute '

Research Grants

The research grant is by far the largest of the Public Health Service grants programs, both in terms of money expended and in the number of institutions affected by such support In 1956, nearly 39 million dollars was spent in research project support, providing for more than 3,400 awards to investigators in 372 institutions located in 47 states, 2 territories, and in 10 foreign countries

Research grants are available from all seven institutes of the National Institutes of Health for the support of research projects falling within their respective areas of interest The Division of Research Grants provides grants in support of research proposals that fall outside these particular areas In addition, two new research grants programs were instituted during 1956 by other divisions of the Public Health Service, in cooperation with the Division of Research Grants The Division of Hospital and Medical Facilities and the Division of Nursing Resources of the Bureau of State Services initiated research project support for the effective development and utilization of hospital and nursing services, facilities, and resources The Division of Sanitary Engineering Services and the Division of Special Health Services, Bureau of State Services, also support projects investigating the public health aspects of air pollution

Research grants are intended to increase research in medical, dental, and other professional schools and institutions and to stimulate new investigations in scientific areas needing exploration Support of such projects indirectly aids in training junior personnel employed in the conduct of these investigations Research grant applications are submitted by institutions in behalf of named principal investigators and for specified research proposals Applications are reviewed by study sections composed of nonfederal scientific specialists in medical and allied research areas, who meet at stated intervals throughout the year Final evaluation and recommendation is provided by an appropriate national advisory council The national advisory councils, one for each institute, are composed of nonfederal personnel prominent in science, education, and public affairs (Further information and application forms for research grants may be obtained from the Division of Research Grants, National Institutes of Health, Bethesda 14, Md)

Visiting Scientist Program

The National Institutes of Health also conducts a visiting scientist program in connection with the extensive research activities that are in progress in its own laboratories and in its 500-bed facility for clinical-laboratory research This program offers two levels of appointment (1) visiting scientist and (2) research associate in the visiting scientist program American and foreign scientists of outstanding ability, who have a doctoral degree or equivalent training and experience, plus at least six years' postgraduate experience in research, are eligible to apply for these appointments, which can provide salary ranging from $5,400 to $12,600 a year The purpose of this program is to increase the utility of the National Institutes of Health as a national research resource and to strengthen interrelations with the broader scientific community

Conferences and Symposiums

To encourage early and adequate exchange of information among investigators, numerous conferences, seminars, and symposiums are supported in connection with the grants and training programs Many of the meetings are initiated and sponsored by the various advisory study sections of the Division of Research Grants The members of these consultant panels, all experts in their respective fields, are able to bring together established workers in specialized areas for free discussion and interpretation of scientific advances The Tissue Fine Structure Conference recently held at the Arden House, Harriman, N Y, for example, was sponsored by the Morphology and Genetics Study Section Another advisory panel, the Biophysics and Biophysical Chemistry Study Section, sponsored the Conference on Biophysics and Biophysical Chemistry, which was held in Ann Arbor, Mich, in September, 1955 The Pharmacology and Experimental Therapeutics Study Section initiated the Conference on Potential Objective Criteria for the Evaluation of Cancer Chemotherapy in Man, held in October, 1955, at Harriman, N Y Other meetings, such as those supported by the National Institute of Mental Health, provide orientation and training in specific services, or review and develop standards for various professions The National Institutes of Health also provides personnel and exhibits for medical and scientific meetings of state, regional, and national scope

In addition, the National Institutes of Health presents clinical conferences, lectures, and seminars in which there is active participation by faculty members of universities and medical schools and by staffs of other service hospitals and research centers, as well as by physicians in private practice and other leaders in the medical sciences

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MEDICAL EDUCATION IN THE UNITED STATES AND CANADA, 1955-1956

This issue of THE JOURNAL presents the 56th Annual Report on Medical Education in the United States and Canada as prepared by the Council on Medical Education and Hospitals of the American Medical Association. The objective of this report is to inform the profession, and others who may be interested of the current status, developments, and trends in this important field of education. Administrative officials of medical schools and universities and representatives of other agencies have been most cooperative in submitting the information essential in the compilation of a report of this nature; for this assistance the Council is deeply grateful.

The past year has witnessed continued progress in the field of medical education. The University of Miami at Coral Gables and Miami, Fla., graduated its first class of physicians, so that there are now 76 approved four-year medical schools and 6 approved schools of basic medical science in the United States. In Canada there are 11 approved four-year medical schools and one approved school of basic medical science. The University of Mississippi and the University of Missouri admitted their first third-year students during 1955-1956 and will graduate their first classes of physicians in June 1957. Albert Einstein College of Medicine conducted its first year of teaching, and both Seton Hall College of Medicine and the University of Florida will initiate their academic programs with first-year students this fall. West Virginia University School of Medicine continues to develop its program of transition from a two-year to a four-year program and will probably admit its first third-year class in 1959. The University of Kentucky is proceeding with its authorization to develop a full four-year medical school program.

Information received from the medical schools indicates that most of them are engaged in continuing curriculum studies and readjustments designed to meet the challenges presented by the rapid advances in knowledge and the modifications necessitated by them. Several institutions are engaged in extensive reevaluation of their entire programs, and it is anticipated that these studies will be reflected by stimulating educational experiments in the near future. This desire on the part of medical faculties to search for, determine, and initiate new methods in keeping with the changing panorama continues to be a healthy portent for medical education and medical care in the future.

There has continued to be improvement in medical school financing, which is reflected in the budgets projected for 1956-1957. Two of the major philanthropic foundations, the Commonwealth Fund and the Ford Foundation, have made appropriations of material significance in the field of medical education in recent months. It is to be hoped that other organizations that recognize medical education as one of the essential functions of modern society will likewise add to the basic "hard money" sources so vitally necessary to the stabilization of essential programs. Grants from outside agencies in support of both research and special teaching activities show a definite gain in these projected budgets.

At intervals, it is useful for medical schools to make comparative curriculum studies in terms of time allocations and methods of instruction. This year a cross section analysis of time allocation devoted to basic medical sciences during the first two years has been prepared. These data present an opportunity for those studying curriculum problems to gain an insight into the maximum, minimum, and median time allocations devoted to these fields by medical schools. It also furnishes an opportunity to compare the relative amounts of time devoted to the utilization of teaching methods such as lectures, laboratory, conferences, and seminars. In subsequent reports other areas of medical education will be similarly treated, so that reference data of this nature will be available to those interested in this field. The wide variation in time allocations in basic medical sciences in different institutions opens interesting philosophical questions concerning both time factor and methodology utilized.

The current report also includes a resume of the background of the studies conducted by the Council on Medical Service of the American Medical Association in regard to the private practice of clinical faculty personnel. The "Conclusions and Recommendations" of the Council on Medical Service as presented to and adopted by the House of Delegates of the American Medical Association on June 14, 1956, are quoted in full.

Because of its ever-increasing significance, more space is devoted in this current report to postgraduate medical education. At the present time, studies are being conducted by the Council on Medical Education and Hospitals with the objective of determining the means by which the various agencies involved in postgraduate medical education can serve the most effective role in the future. Continuing education in medicine presents one of the great challenges to all uals and organizations, whether schools, hospi- or professional societies, during the years ahead is deserving of greater attention than it has received in the past

THE PRACTICING PHYSICIAN AND MEDICAL RESEARCH AND EDUCATION

In its Report on Medical Education in the United States and Canada, the Council on Medical Education and Hospitals highlights the inevitable interdependence of individuals in medical practice, medical education, and research Certainly no one can deny this relationship—least of all the practicing physician, whose dependence on the other two activities is most clear-cut and direct and finds expression, perhaps en unrecognized, routinely in his daily life

Council centers attention on the recent report the American Foundation entitled "Medical Research A Midcentury Survey"[1] This report, and particularly the first volume, contains a wealth of material that should be of vital concern to every member of the medical profession, regardless of his primary field of interest The American Foundation is to be commended for the lucid report of its thoughtful analysis of the serious problems facing medical research today These problems are related to medical education and medical practice, and any resolution or lack of it will inescapably have a direct impact on education and practice

It is hardly necessary to point out that medical practice and education are also beset with important questions that are clearly of significance to individuals in both fields of endeavor Political, social, and economic changes—and indeed change in the age characteristics of the population brought about by medical research and made a part of medical practice through medical education—represent the denominator common to the more basic problems in all three activities

Medicine labors under the single primary obligation to conduct its affairs in order that the general public welfare be best served This obligation is shared by medical research, education, and practice In view of the recognized interdependence, a common source of basic problems and shared primary obligation, the best interests of medicine in its total sense and the public would be well served if the differing yet similar viewpoints of leaders in medical research, education, and practice were focused on one another's problems

GREAT CHALLENGES IN POSTGRADUATE MEDICAL EDUCATION

Physicians have long recognized the need for continuing education throughout professional life in order to render the best possible medical care to their patients and to their communities During recent years this need has become increasingly apparent, for advances in medical knowledge have occurred with such rapidity that even the best preparation for the practice of medicine would soon become inadequate without continuous revision of older concepts and addition of new information This is equally true whether the physician is in the general practice of medicine or restricts his practice to one of the specialty areas The vast field of medical literature is constantly expanding, and no physician through his individual efforts could possibly keep abreast of it all

Over the years various means of continuing medical education have developed They include such methods as reading current literature, professional contacts between physicians and their colleagues in medicine and allied fields, attendance and exchange of opinion in hospital staff meetings and conferences, attendance at medical society meetings, and attendance at formal postgraduate courses These approaches have varying values, which depend upon the manner in which the individual physician utilizes them as well as on the inherent potentialities within the method itself One of the most challenging problems confronting postgraduate medical education today is to determine the best means of communicating to physicians the fruits of research for the ultimate benefit of all medical care

At the time of the Flexner report in 1910, postgraduate medical education was concerned entirely with attempting to repair a basically inadequate medical education rather than with the communication of current discoveries to well-educated physicians The repair or "refresher" function of continuing education is disappearing as more adequate undergraduate and graduate medical education has developed The current and future challenges of postgraduate medical education include the need for provision of educationally sound programs of various kinds and in sufficient quantity to meet the ever-increasing demand

Medical schools, hospitals, and medical societies, as well as other institutions and organizations, are involved, individually and cooperatively, in postgraduate programs for physicians Problems analogous to those that occurred as undergraduate and graduate medical education developed are present in the advancing field of postgraduate medical education

The Council on Medical Education and Hospitals is increasingly concerned with this field, as reported in this issue of The Journal The Council hopes to assist in the further development of postgraduate medical education as this area of education assumes an ever more important role in the period ahead

COOPERATION IN MEDICAL EDUCATION AND MEDICAL SERVICE

On February 6, 1928, Arthur Dean Bevan,[1] then Chairman of the Council on Medical Education, delivered an address before the Annual Congress on Medical Education of the American Medical Association entitled "Cooperation in Medical Education and Medical Service" In that address, he endeavored to present the functions of the medical profession, of the university, and of the public through reviewing the advances that had been made in medical education in the public interest through cooperation

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[1] Medical Research A Midcentury Survey vol 1 American Medical Research In Principle and Practice, vol 2 Unsolved Clinical Problems In Biological Perspective, published for the American Foundation Boston, Little, Brown & Company, 1955

Medicine still is one of the greatest functions of modern civilization It is, as Bevan stated, "in every day contact with every individual in every community Without modern scientific medicine, without modern public health service, our modern civilization would soon cease to exist Great cities, such as London, New York, Paris, and Chicago, would be impossible They would soon rot away under great plagues as the larger centers of population did in the Middle Ages Medical education and medical practice are not functions of the university and the medical profession alone, they are functions of modern civilization in which the entire community is vitally interested"

Bevan indicated that to secure the best medical education and the best medical practice, both preventive and curative, the cooperative support of the medical profession, the universities, and the community was necessary He continued that 'medical education cannot be safely left in the hands of the medical profession alone" and supported this contention by reviewing the chaotic situation in this field during the period when most medical schools were proprietary and relatively few were allied with, or integral parts of, universities But he also wisely commented that 'the medical school cannot be safely left in the hands of universities alone" for "uprooted from the medical profession uprooted from the community and transplanted to the scientifically prepared soil of the university campus the medical school will lack those things which the medical profession and the community alone can give" Bevan made a forceful plea that the best interests of medical education and medical practice could be served through preventing a line of cleavage or a schism, from developing between the medical profession and the medical teachers in our university schools of medicine, signs of which he envisioned if both groups did not work together for a common purpose

The misunderstandings and disagreements that have developed in recent years between some medical schools and the members of the medical profession in the areas where these institutions are located highlight the importance of the sage counsel advocated by Bevan nearly 30 years ago Medical schools are the source of the nation's future physicians, and every physician now practicing has received his basic professional education in one of them They are vital elements in our modern civilization Medical schools today are conducting their activities under changing socioeconomic conditions and educational readjustments that have made adequate financing exceedingly difficult The advance of knowledge applicable to medicine, the increasing complexity of organizing and conducting educational programs, and the growing research activities of medical schools have necessitated that some clinical faculty members devote the major portion, if not all, of their time to these tasks The financial burden of this added need has been of such nature that many institutions have not been able to meet it without arrangements permitting individuals to augment the income received from the school through some form of practice privilege It is in this area that most of the problems that led to the recent study of 'Private Practice by Full Time Medical School Faculty" have arisen

The "Conclusions and Recommendations" emanating from the 18 month study of the Council on Medical Service and adopted by the House of Delegates of the American Medical Association in June, 1956, have been included in the current Annual Report on Medical Education in the United States and Canada This objective study is worthy of careful evaluation by both the medical schools and the profession There is no logical way in which medical education can be conducted without involving medical practice Any effort to do otherwise would make certain aspects of medical education totally impossible The important matter is that the medical schools need the support and cooperation of the medical profession and the profession needs the support and cooperation of the schools This is and should be a two-way street There is no currently existing problem in this area that cannot be solved satisfactorily if the schools and the profession recognize their mutual obligations, responsibilities, and interdependence It is not in the best interests of medical education, medical practice, or the great function medicine plays in modern civilization that "a cleavage, or schism" be permitted to grow between the medical schools and the medical profession One way to prevent it is for medical faculty personnel to take a more active interest in the problems of the medical profession and for the medical profession to become more interested in the problems of the schools "Cooperation in Medical Education and Medical Service" is the only logical answer to these problems

DIETS AND OBESITY

Elsewhere in this issue of THE JOURNAL (pages 1633, 1636, and 1700) are statements concerning the use of diets that have received considerable publicity in magazines intended for the lay population One article discusses in some detail the components of the diet and their possible effects Another stresses the availability of the services of the Council on Foods and Nutrition for advice on obesity problems The third is a statement from a member of the institute at which the diet was studied An earlier communication was published in THE JOURNAL, June 30, page 901 In view of the discussion that has been aroused, readers of THE JOURNAL undoubtedly will be interested in the three statements in this issue

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[1] Bevan, A. D Cooperation in Medical Education and Medical Service Functions of Medical Profession of University and of Public, J A M A 90 1173-1177 (April 14) 1928

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

A few weeks ago I had the pleasant task of addressing the 50th anniversary program of the Pure Food and Drug Act in Washington, D. C. In that speech I outlined the close working arrangement the American Medical Association has had with the Food and Drug Administration in the past 50 years. The story of that cooperation is so interesting that I would like to share it with you.

A. M. A. history shows that doctors were interested in, and fought for, federal laws governing the protection and marketing of foods and drugs long before 1906, the year of the Food and Drug Act and Meat Inspection Act. In the early 1880's Dr. F. E. Stewart urged the A. M. A. to recommend the establishment of a national bureau of medicines and foods, and in 1892 the A. M. A. made its first proposals for food and drug legislation to prevent adulteration.

The Journal in 1892 also recommended the establishment of a department of health and the placement of a food and drug administration under it. (As you know, this is the present setup, with the FDA under the Department of Health, Education, and Welfare.)

Just after the turn of the century a California physician, Dr. Ellis, proposed that a national organization be formed with representatives of the A. M. A. and the American Pharmaceutical Association examining and analyzing new remedies and making certain that labels were truthful and claims warranted. A committee was formed and reported at the next Annual Meeting of the A. M. A. Although the establishment of a national bureau failed after extended discussion in the House of Delegates, the effects of the pressure—brought about by the discussion—were sufficient to cause the Board of Trustees to take action later that resulted in the establishment of the A. M. A.'s own Council on Pharmacy and Chemistry.

In February, 1905, one year before the signing of the Pure Food and Drug Act, the Council on Pharmacy and Chemistry held its first meeting. Dr. Harvey Wiley, the doctor-chemist primarily responsible for the enactment of the Pure Food and Drug Act, was a charter member. In the spring of 1905 Secretary of Agriculture James Wilson told the A. M. A. that he had established a laboratory in his department's bureau of chemistry for the investigation of adulteration of drugs and medicines. So began the close cooperation between the A. M. A. and FDA.

The Bureau of Investigation of the A. M. A., too, has worked in harmony with the FDA for half a century. Also set up in 1906, the Bureau was among the first organized groups in the United States to investigate quackery. For 50 years now its primary object has been the collection and dissemination of information on nostrums, quacks, medical fads, and various other phases of pseudomedicine. A third scientific A. M. A. group cooperating with the FDA is the Council on Foods and Nutrition, organized in 1929 to evaluate nutritional claims of food processors and to discourage unwarranted, incorrect, and false promotional claims. As FDA activities increased after the 1938 law, the Council on Foods and Nutrition swung into a more positive phase—encouraging good practices in food advertising and labeling and improving the nutritional aspects of food.

A fourth group, the Council on Medical Physics, is concerned with the evaluation of medical devices and the publication of authoritative reports on the established uses and limitations of such machines and equipment. Finally, a fifth and relatively new A. M. A. group, the Committee on Cosmetics, established in 1948, promotes a better understanding of the usefulness and limitations of and health problems connected with cosmetic preparations.

So today the A. M. A. has five groups—the Council on Pharmacy and Chemistry, the Bureau of Investigation, the Council on Foods and Nutrition, the Council on Medical Physics, and the Committee on Cosmetics—serving the profession and the public and supplementing the activities of the FDA in the vital matters of foods, drugs, cosmetics, and medical devices.

All of us can be proud of the A. M. A.'s cooperation with the FDA, with the thousands of commercial establishments distributing products, and with other citizen groups in keeping the standards of America's foods, medicines, and cosmetics as high as possible.

Dwight H. Murray, M.D.,
Napa, Calif.

MEDICAL NEWS

CALIFORNIA

Course on Diagnostic and Therapeutic Radiology —The postgraduate division of the University of Southern California School of Medicine Los Angeles, will present a postgraduate course in the Physics of Diagnostic and Therapeutic Radiology from Sept 7, 1956 to Feb 1, 1957 The 20 lectures (Fridays, 4-5 p m) by the department of radiology at the Los Angeles County Hospital, designed for physicians preparing for the specialty of radiology, will also benefit those preparing to specialize in dermatology Lectures will cover fundamental x-ray physics determination of quality and quantity of radiation tissue dosage from x-rays, radium, and radon, radiation protection and radiation biology (tuition, $50) For further information, contact Dr Phil R Manning Director Postgraduate Division, School of Medicine, University of Southern California, 2025 Zonal Ave , Los Angeles 33

Personal —Dr John C Talbot, Los Angeles, associate medical director of the Pacific Mutual Life Insurance Company has been named medical director to succeed the late Dr Linford H Lee —Dr James T Harrison, Van Nuys has been appointed to succeed Dr Robert S Westphal as health officer of Sonoma County Dr Westphal is now assistant to the area director, World Health Organization, with headquarters in Alexandria Egypt.—Dr John W Scott Jr Sacramento son of Dr John W Scott of Colusa, has been appointed physician for Yuba County for one year —Dr Harold E Pearson, professor and head of the department of public health in the University of Southern California School of Medicine Los Angeles has received a John Simon Guggenheim Memorial Foundation fellowship for a year s study at the Pasteur Institute in Paris France, where he will do research on viruses and tumors Dr Pearson who has been on the medical faculty since 1944 will be on sabbatical leave from the university to accept the Guggenheim award —Drs Frederic N Tyroler and Leo J Adelstein, Los Angeles, were recently appointed new members of the state board of medical examiners Both were named to four-year terms, succeeding Drs Joe Zeiler and Frank W Otto also of Los Angeles whose terms expired Dr Tyroler, a councilor of the Los Angeles County Medical Association, district 1 is a senior attending physician at the Los Angeles County Hospital and an associate senior attending physician at Cedars of Lebanon Hospital Dr Adelstein vice-president and member of the executive committee of the staff of Queen of Angels Hospital is a past-president of the Los Angeles Society of Neurology and Psychiatry and a medical examiner of the Superior Court of Los Angeles County

LOUISIANA

Graduate Medical Assembly —The ninth annual meeting of the Southwest Louisiana Graduate Medical Assembly will be held in Lake Charles Sept. 14-15 All physicians are invited to attend this meeting, which is approved for category 1 credit by the American Academy of General Practice Presentations during the scientific sessions will include

Oxygen Therapy Albert J Ochsner II Alexandria.
Roentgenology in Obstetrics William Snow Shreveport
Antibiotic Diseases John H. Seabury New Orleans
Hazards of Steroid Therapy Differential Diagnosis of Fever Theodore C. Panos Galveston Texas
Acute Cholecystitis James D Rives New Orleans
Dermatologic Manifestations of Some Systemic Diseases Henry W Jolly Jr Baton Rouge
Pathological Physiology of Lower Nephron Nephrosis Joseph F A McManus Birmingham Ala.
Differential Diagnosis and Initial Treatment of Cerebrovascular Accidents Earl H Rafes Beaumont Texas.

Drs. Ochsner Rives, and Panos will hold a panel discussion on surgery and the cardiac patient

Scholarship Loan Fund —The Elizabeth Bass Memorial Scholarship Loan fund is being created at the Tulane University School of Medicine New Orleans, in tribute to the late Dr Mary Elizabeth Bass, emeritus professor in the department of medicine Contributions may be sent to Dr Georgiana J von Langermann, 1430 Tulane Ave , New Orleans 12

MASSACHUSETTS

Course on Alcoholism —The annual 15-week evening course on alcoholism will open Sept. 19 at 7 15 p m at Boston University under the cosponsorship of the Boston Committee on Alcoholism and the Personnel Managers Club of the Greater Boston Chamber of Commerce The course will be directed by Dr David Landau, medical director of the Boston Committee on Alcoholism, clinical instructor in psychiatry at Tufts College Medical School and a member of the staff at New England Medical Center The seminar aspects of the course will be conducted by Leo Lieberman, Ed D chairman of the psychology department at Suffolk University, Boston The course, given specifically to meet the needs of personnel officials in business and industry in recognizing understanding, and aiding employees whose drinking affects work efficiency, will also be directed toward hospital personnel—doctors, nurses, physical and occupational therapists, social workers, and administrators Lectures will cover the medical and socioeconomic aspects of alcoholism and their controls, and seminars will be conducted along the lines of a clinical staff conference Persons attending will be invited to present cases and problems for discussion and solution

MICHIGAN

Physician Needed.—With the departure of Dr Harry F Vail, who is scheduled to leave Sept. 1 to practice on the mainland, Beaver Island loses its only physician for the second time in four years In 1952, Dr Russell E Palmer, who had been the island s only doctor for 29 years retired Because of the island s location, the islanders are faced with the possibility of having to abandon it unless a physician is found promptly Two registered nurses among the permanent residents on the island are available to help in meeting the islander s health problems The island (about 16 miles long) largest in an archipelago off the northern shore of Michigan s southern peninsula, can be reached only by plane or during the summer, by a 33-mile ferry boat ride from Charlevoix The only telephone on the island is at the U S Coast Guard station in St James, and this community, located on the northern tip of the island, is the only town The island has recently begun to develop as a resort area Since 1923, the Michigan State Legislature has made a regular appropriation for a "Beaver Island Physician" The basic salary ranges from $6,493 68 to $7 642 08 plus all fees collected The island is said to have a modern well-equipped clinic in St. James, with a consultation room and office waiting room two bedrooms, a fully equipped examination room and surgery x-ray room, pharmacy, and small utility room Applications to fill the vacancy are being taken by Dr Albert E Heustis Commissioner, Michigan Department of Health, Lansing

MISSOURI

Professor of Surgery Named —The State University of New York College of Medicine in Syracuse has appointed as its first full-time professor and chairman of the department of surgery Dr C Barber Mueller, who comes to Syracuse from Washington University School of Medicine, St Louis where he has been since 1951 Since 1953 he has been consultant in general surgery at Scott Air Force Base Ill

NEW JERSEY

Hospital News —The Atlantic City Hospital will have as visiting chiefs pro tem Dr Eugene A. Stead Jr , professor and chairman, department of medicine Duke University School of Medicine, Durham, N C Sept. 4-7 Dr Paul O Klingensmith, associate professor of obstetrics and gynecology, University of Pennsylvania School of Medicine, Philadelphia, Sept. 10-14, Dr William J Orr, professor of pediatrics University of Buffalo School of Medicine, Sept. 17-21, and Dr Isidore Snapper, director of medicine and medical education, Beth-El Hospital, Brooklyn, N Y Sept. 24-28

Physicians are invited to send to this department items of news of general interest for example those relating to society activities new hospitals education, and public health Programs should be received at least three weeks before the date of meeting

Personal —Murray H Mazer, Metuchen, was given the Dr John J Sheinin meritorious award for excellence of character, scholarship, and professional competence at the 42nd commencement exercises of the Chicago Medical School, June 16 The award, consisting of $100, is given anonymously by a member of the staff of Mount Sinai Hospital, affiliated with the school as a teaching hospital ——Dr Earl J Halligan, senior surgeon, U S Public Health Service, received an honorary degree of doctor of laws from Seton Hall University, South Orange, at its 100th commencement, June 9 Dr Halligan is medical director, director of surgery, and surgeon-in-chief, Jersey City Medical Center, chief of surgery, St Francis Hospital, attending surgeon, Margaret Hague Maternity Hospital, all in Jersey City, and consulting surgeon at St Mary's Hospital, Hoboken, Holy Name Hospital, Teaneck, and Rahway Hospital, Rahway He is associate editor of the *American Journal of Proctology* and *Medical Times*, secretary-general, International Academy of Proctology, and regent, International College of Surgeons

NEW YORK

Promoted to Professorships —The State University of New York College of Medicine at New York City, Brooklyn, announces the promotion to full professor of Drs Jack Gross of the department of anatomy and Frank C Hamm of the division of urology, department of surgery Dr Gross came to the college as an assistant professor in 1952, and Dr Hamm has been head of the division of urology as an associate professor since 1953 Dr Hamm also holds the post of director of urology of the University Division at Kings County Hospital

Syracuse Faculty Appointment —The State University of New York College of Medicine in Syracuse has appointed the following new faculty members

As assistant professor of medicine Dr Junior A Abildskov research consultant at Texas Western College of the University of Texas at El Paso Dr Abildskov, secretary of the Vectorcardiography Society has published widely in the field of cardiology

As assistant professor of microbiology, Howard H Shear Ph D , formerly research and teaching assistant in the department of bacteriology and immunology, University of Minnesota, Minneapolis instructor in bacteriology at the University of Rochester School of Medicine and Dentistry and assistant research virologist department of pediatrics University of California at Los Angeles School of Medicine

As assistant professor of environmental and administrative medicine Alan Ross, Ph D , who has been research assistant department of biostatistics at the University of Pittsburgh Graduate School of Public Health since 1954

As instructor in pathology, Dr Ilga Rullis who came to Syracuse in April 1956, as assistant chief of laboratory service Veterans Administration Hospital

Tribute to Foster Kennedy —As a memorial to the late Dr Foster Kennedy, his colleagues and friends are raising a fund for building a canteen at the Bellevue Hospital Center for the accommodation of attending physicians, outpatients, visitors, and volunteers The ladies of the Social Service Auxiliary are sponsoring this project, any profits from which will go to further the work of the auxiliary in the hospital It is proposed to erect a plaque in Dr Kennedy's memory, inscribed 'In Tribute to Foster Kennedy, M D , F R S (Edin) D Sc , Director of the 2nd Medical Neurological Division 1919-1949, A great teacher, an eminent clinician and a zestful trusted friend " Contributions may be sent to Social Service Auxiliary to Bellevue Hospital, Room 11, Bellevue Hospital, New York 16

New York City

Dr Lincoln Relinquishes Two Posts —Dr Edith H M Lincoln, chief of the chest clinic of the Children's Medical Service of Bellevue Hospital and professor of clinical pediatrics, New York University College of Medicine, retired from these posts July 1 but will continue to direct a number of research projects from the pediatrics service at Bellevue She is being succeeded at Bellevue by Dr Margaret H D Smith, formerly of Tulane University School of Medicine, New Orleans, who joined the children's chest service a year ago Dr Smith is also connected with the pediatrics department of New York University

Clinic for Cerebral Palsied Children —An outpatient clinic that will provide both diagnostic and therapeutic services for cerebral palsied children has been opened at the new Metropolitan Hospital, Second Avenue and 97th Street, to be operated by the New York Medical College-Metropolitan Medical Center Dr Jerome S Tobis, director of the department of physical medicine and rehabilitation for the medical center, will be in charge Dr Abraham O Posniak, an instructor in the department, will be chief of the clinic. The outpatient clinic is an extension of inpatient facilities for children with cerebral palsy at the Bird S Coler Hospital, a division of the center Evaluations will be held every Tuesday at 9 a m Information may be secured by writing or telephoning Miss Harriet Levine, Coordinator of the Cerebral Palsy Clinic, Department of Physical Medicine and Rehabilitation, Metropolitan Hospital, Second Avenue and 97th Street, New York City

OHIO

Medicolegal Institute —A two-day institute on "The Head A Law-Medicine Problem" will be held Sept 21-22 at the Law Medicine Center of Western Reserve University, Cleveland Friday lecture topics will include anatomy of the head, acute head injury—anatomic findings, long-range pathological changes following trauma to the head, clinical evaluation of acute head injury and of remote sequellae of head injury, indications and evaluations of the electroencephalogram, and psychometric test ings Saturday's subjects will be psychiatric evaluation of the post-traumatic syndrome of head injury, eye injury, injury to the auditory apparatus, plastic surgery, and medicolegal problems in head injuries The September institute will be the second in a series that began early in 1956 with a similar course on the human back The registration fee will be $25 Complete information on the Institute on the Head, including housing suggestions, is available from Oliver C Schroeder Jr , Director, Law-Medicine Center, Western Reserve University, Cleveland 6

Refresher Course in Aviation Medicine —The third Postgraduate Program in Aviation Medicine will be presented at the Health Center, Ohio State University at Columbus, Sept 10-14, under the joint sponsorship of the Ohio State University College of Medicine and the medical division of the Civil Aeronautics Administration Designed for physicians interested in the health aspects of flying, it will include presentations on (1) Physical Fitness of Aircrew, (2) Passenger Safety and Comfort, (3) Space Medicine, and (4) Medical Administration (including medical economics of the aviation industry) Field visits to the Medical Research Unit at Wright Air Development Center and to the Medical Research Laboratory, Civil Aeronautics Administration, are scheduled Invited lecturers will include Dr Hallowell Davis, St Louis, Dr Harold B Dye, Kansas City, Mo , Capt Ashton Graybiel, Pensacola, Fla , Dr Hans W Lawrence, Cincinnati, Ross A McFarland, Ph D , Boston, and Major H O Parrach and Brig Gen Edward J Tracy of Wright-Patterson Air Force Base, Dayton The registration fee, $75, includes transportation to Dayton and two dinner meetings Further information may be obtained from Dr William F Ashe, Chairman, Department of Preventive Medicine, Ohio State University Health Center, Columbus 10

PENNSYLVANIA

Kunkel Memorial Award —At the second annual Doctor's Day dinner of the Harrisburg Hospital, the annual George B Kunkel Memorial Award for Advances in Medical Science was inaugurated by the late Dr Kunkel's son, Lewis S Kunkel, LL D , member of the advisory board of the hospital The George B Kunkel Memorial Lecture, "The Development of Cardiac Surgery," was presented by Dr Charles P Bailev, professor of thoracic surgery, Hahnemann Medical College and Hospital, and director of the Bailey Thoracic Clinic, Philadelphia

Philadelphia

Institute on Medical Practice —The University of Pennsylvania Graduate School of Medicine will present the seventh annual institute, "Current Concepts in Medical and Surgical Practice," Sept 17-21 at the Penn-Sherwood Hotel, 3900 Chestnut St All physicians are welcome to attend the institute Full study course credit (formal) up to a total of 31 hours will be allowed for the week's course by the American Academy of General Practice On Monday at 8 30 p m the ninth Walter Estell Lee Lecture will be presented by Dr Jonathan E Rhoads, provost of the University of Pennsylvania, professor of surgery and surgical research, and assistant director of the Harrison department of surgical research at the school of medicine of the University of Pennsylvania Dr Rhoads, who serves also as professor of surgery in the Graduate

School of Medicine of the University of Pennsylvania, will speak on Development of Preventive Surgery in the Field of Cancer" The fees for the full week including luncheons, are alumni of the graduate school of medicine, $25 nonalumni, $75 and incoming students $15 Residents and interns pay no tuition fee

TENNESSEE

University News—The following physicians have been appointed assistants on the staff of the University of Tennessee College of Medicine Memphis Dr Paul T Drenning division of medicine Dr John B Hamsher department of urology Drs Andrew H Crenshaw Lee W Milford Jr and Rocco A Calandruccio department of orthopedic surgery Drs David H James Jr Charles Walter Brown, and Chris N Christu, division of pediatrics Dr Christu is from West Memphis Ark all the other appointees are from Memphis

State Association Headquarters—The Tennessee State Medical Association, which moved its offices from the Doctors Building in downtown Nashville to 112 Louise Ave shares the new red brick building with the Nashville Academy of Medicine The building is close to the west side of the Vanderbilt University campus and about a block from St Thomas Hospital The offices of the association executive secretary the academy executive secretary the association bookkeeper the public service director and the secretary for postgraduate education are all located on the main floor as is the conference room capable of seating all the members of any single committee The basement houses files mimeograph equipment and bulky supplies The headquarters building committee consisted of Dr Daugh W Smith chairman Dr Charles C Trabue IV and Dr Rudolph H Kampmeier, all of Nashville

New home of the Tennessee State Medical Association

WYOMING

Personal—The Brooke Army Medical Center, Fort Sam Houston Texas announces that Capt Spencer Walton Buffalo received the Skinner medal for attaining the highest grades of any physician in a basic course for company level career officers at the Army Medical Service School

State Medical Election—The Wyoming State Medical Society recently elected Dr Joseph S Hellewell Evanston, president Dr Harlan B Anderson Casper president-elect Dr L. Harmon Wilmoth Lander vice-president Dr Benjamin Gitlitz, Thermopolis secretary and Dr Carleton D Anton Sheridan, treasurer

Medical Funds Transferred to Utah—In an effort to use some of a federal grant of $300 000 due to be lost to Wyoming for lack of matching funds $50 000 earmarked for construction of rehabilitation centers has been transferred to the state of Utah for use in building an addition to St Mark s Hospital in Salt Lake City Wyoming patients will be admitted to the hospital on the same basis as Utah citizens Of the $250 000 remaining $100 000 earmarked for nursing and convalescent homes $100 000 for diagnostic and treatment centers and $50 000 for chronic disease hospitals reverted to the federal government at the end of June, for lack of application and matching funds from Wyoming communities

GENERAL

Tri State Obstetric Pediatric Seminar—The Florida Medical Association and the Florida State Board of Health announce the sixth annual Tri State Obstetric-Pediatric Seminar at the Daytona Plaza Hotel, Daytona Beach, Sept 10-12 Among those who will participate are Dr Edith L Potter, University of Chicago School of Medicine Dr Clement A Smith, Harvard Medical School Boston, Dr James G Hughes University of Tennessee College of Medicine Memphis and Dr Allan C Barnes, Western Reserve University School of Medicine, Cleveland The seminar is sponsored by the bureaus of maternal and child health of the Florida Georgia and South Carolina state health departments and by the state medical associations of these three states All physicians are welcome There is no registration fee

Symposium on Antibiotics—The Fourth Annual Symposium on Antibiotics, sponsored by the Food and Drug Administration, Division of Antibiotics of the U S Department of Health, Education and Welfare and the journals *Antibiotics and Chemotherapy and Antibiotic Medicine & Clinical Chemotherapy,* will be held Oct 17-19 at the Willard Hotel, Washington, D C The tentative program includes the following topics for panel discussion (1) Antibiotics in Intestinal Antisepsis, (2) Present Status of Food Preservation with Antibiotics, and (3) Susceptibility of Microorganisms to Antibiotics Isolated From Hospitalized and Nonhospitalized Persons Abstracts in triplicate (no more than 200 words) may be submitted no later than Sept 3 The original manuscript and one copy must be submitted by Sept 17 Manuscripts (original, previously unpublished material, typewritten, double spaced) should be submitted to Henry Welch, Ph D , Director, Division of Antibiotics, Food and Drug Administration, U S Department of Health, Education, and Welfare Washington 25, D C

First Inter-American Conference on Occupational Medicine—The University of Miami School of Medicine, Coral Gables, Fla and University of Havana (Cuba) School of Medicine will hold the first Inter-American Conference on Occupational Medicine and Toxicology, Sept 3-7 in Miami, with the University of Miami School of Medicine serving as host Homer F Marsh, Ph D dean of the school of medicine, will be general chairman It is expected that the conference will be repeated next year with the University of Havana serving as host Topics discussed by speakers from Venezuela, Mexico, Peru, Colombia, Chile, Puerto Rico, Cuba, the United States and other countries will include Establishment of a Medical Department in Industry' Work and Fatigue in Industry Effects of Environmental Conditions on the Health of the Occupational Worker, Recording of Medical Case Histories," Control of Malaria in Endemic Areas, Occupation and Heart Disease, 'The Role of the Anesthesiologist in Acute Poisonings, Neurological Problems in Occupational Medicine and Toxicology," "The Treatment of Intoxications by Organic Phosphates, Management of Berylliosis and 'Treatment of Manganese Intoxication

Campaign to Reduce Accidental Falls—On Sept 1 the National Safety Council will launch a nationwide campaign against accidental falls which are second to motor vehicle accidents in number of fatalities In 1955, 19,800 persons in the United States (55 a day) were killed by falls In the nation s industrial operations alone more than 450,000 workers are temporarily or permanently disabled annually by falls The goal of the campaign is a 50% reduction in injuries and deaths due to falls The council will make available posters banners films, flip charts illustrated booklets, five-minute safety talks and safety instruction cards on falls to companies and governmental agencies A certificate of achievement will be awarded to each plant achieving the goal of a 50% reduction in falls or having no chargeable injuries from falls during the campaign year Companies enrolling in the campaign must provide injury experience from falls covering 1955 and 1956 to the nearest convenient date A special feature of the campaign will be a certificate of commendation to supervisors who attain the campaign goal For a copy of the booklet Falls Aren t Funny" and a brochure listing the campaign materials available, write the National Safety Council 425 N Michigan Ave Chicago 11

Hematologists Meet in Boston ·
national Society of Blood Tra
Philadelphia pr and t

American Association of Blood Banks (Dr James J Griffitts, Miami, Fla, president) will take place at the Hotel Somerset in Boston, Sept 3-5, immediately following the sixth congress of the International Society of Hematology under the presidency of Dr William Dameshek to be held during the week of Aug 26 (THE JOURNAL, Nov 26, 1955, page 1314, June 9, 1956, page 544) Joint sessions of the two congresses will feature immunohematology "autoimmunohematology" on Sept 1 and "isoimmunohematology" on Sept 3 The tentative agenda for the meeting of the blood transfusion congress and the association of blood banks includes clinical problems (transfusion reactions and massive transfusions), preparation and preservation of blood, plasma and plasma derivatives, isoimmunohematology, hepatitis, immunochemistry, and isoantibodies The American Association of Blood Banks has arranged the following luncheon panel meetings Improvements in Blood Preservation, The Rarer Antibodies, Their Detection, Identification and Significance in Blood Transfusion, The Survival of Transfused Cells in Relation to Disease States, The Problems of Blood Transfusion in Pediatrics, The Preparation and Use of Fractions of Human Plasma, and Organization of Blood Transfusion Services

Meeting of Obstetricians and Gynecologists —The American Association of Obstetricians and Gynecologists will hold its 67th annual meeting at the Homestead, Hot Springs, Va, Sept 6-8, under the presidency of Dr Lawrence M Randall, Rochester, Minn Presentations by invitation will include

Urethrovesicopubic Relations in the Female Effects of Coitus, Parturition, Menopause, and Uterine Suspension, C Paul Hodgkinson Detroit
Utility of the Mid-Forceps Operation—A Review of 1,000 Consecutive Procedures, Robert A Cosgrove, Jersey City, N J
Correlation of Urinary Steroid Metabolites, Uterine Motility, and Obstetrical Pathology Paul D Bruns, Denver
Evaluation of the Basal Cell in Radiosensitivity Studies of Carcinoma of the Cervix, Charles J Smith Chicago
Evaluation of Supervoltage Irradiation Therapy in Treatment of Pelvic Malignancy, George A Hahn, Philadelphia

The Thursday afternoon session will close with 'Studies on Lactic Acid Metabolism in Pregnancy and Labor" by Dr Charles H Hendricks, Western Reserve University School of Medicine, Cleveland, the prize thesis of the American Association of Obstetricians and Gynecologists Foundation, Inc, which will hold its meeting Thursday at 2 30 p m The Joseph Price Oration by Prof Pierre H deWatteville, Geneva, Switzerland, will be delivered at 8 45 p m Thursday The president's address is scheduled for 12 noon Friday and the banquet for 7 30 p m that day

Surgeons Meet in Chicago —The 10th biennial Congress of the International College of Surgeons, combined with the 21st annual Congress of the United States and Canadian sections, will convene at the Palmer House in Chicago Sept 9-13 The Acuff Memorial Lecture for the year will be given by Dr Alexander Brunschwig, New York, who will speak on pelvic surgery Prof Felix Mandl, Vienna, Austria, secretary of the Austrian section, a pioneer in surgery of the parathyroid, will deliver a report on his technique Other foreign speakers will include

Rudolph Nissen Basel, Switzerland, president of the International College of Surgeons
Carlos Gama, São Paulo, Brazil, president-elect of the International College of Surgeons
Raymond Darget, Bordeaux, France secretary of the French section
Leopold Lambert Liege, Belgium, president of the Belgian section
Andre Nicolet, president of the Swiss section
Jorge A Taiana, Buenos Aires, Argentina, secretary of the Argentinian section
Tassilo Antoine dean of the Medical Faculty, University of Vienna
Lucien Leger University of Paris France
Edmond Velter, director of the department of ophthalmology, University of Paris
Clovis Salgado, minister of health São Paulo, Brazil
Pedro A Gutierrez Alfaro, minister of health Caracas Venezuela
Albert Jentzer professor emeritus and head of the department of surgery University of Geneva, Switzerland

The annual banquet will be held Wednesday night The congress will close Thursday evening with the annual convocation in the Civic Opera House, at which Dr David B Allman, Atlantic City, N J, President-Elect of the American Medical Association, will be the speaker Dr Allman's subject will be "The Role of the American Medical Association in International Health" Open house will be held during the congress at the International Surgeons Hall of Fame and the School for History of Surgery and Related Sciences, 1516 Lake Shore Dr

Prevalence of Poliomyelitis —According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States and its territories and possessions in the weeks ended as indicated

Area	July 28 1956 Paralytic Type	July 28 1956 Total Cases Reported	July 30 1955 Total
New England States			
Maine			9
New Hampshire			16
Vermont	2	3	4
Massachusetts	2	7	201
Rhode Island			8
Connecticut	2	3	29
Middle Atlantic States			
New York	8	23	65
New Jersey	3	7	11
Pennsylvania		4	27
East North Central States			
Ohio	3	24	38
Indiana	4	20	20
Illinois	70	158	54
Michigan	6	15	50
Wisconsin	2	8	56
West North Central States			
Minnesota	1	8	24
Iowa	3	19	27
Missouri	5	17	0
North Dakota			3
South Dakota		1	1
Nebraska		1	19
Kansas	2	7	12
South Atlantic States			
Delaware			2
Maryland	1	2	9
District of Columbia			
Virginia	4	7	21
West Virginia	2	4	4
North Carolina	11	20	21
South Carolina	1	4	8
Georgia	7	13	6
Florida	6	12	11
East South Central States			
Kentucky	3	10	17
Tennessee	2	2	13
Alabama		8	8
Mississippi	7	11	8
West South Central States			
Arkansas	6	9	11
Louisiana	16	20	9
Oklahoma	10	18	27
Texas	34	63	71
Mountain States			
Montana		5	1
Idaho	3	7	7
Wyoming			3
Colorado	1	1	9
New Mexico		1	4
Arizona	4	6	2
Utah		22	
Nevada	1	2	1
Pacific States			
Washington	5	10	12
Oregon	2	4	17
California	43	74	57
Territories and Possessions			
Alaska	1	1	2
Hawaii			3
Puerto Rico	4	4	5
Total	293	663	1 011

Congress of Physical Medicine —The American Congress of Physical Medicine and Rehabilitation will hold its 34th annual scientific and clinical session Sept 10-14 in Atlantic City, N J, under the presidency of Dr Gordon M Martin, Rochester, Minn At the opening of the annual session Tuesday, 2 p m, addresses of welcome will be delivered by Mayor Joseph Altman and Dr David B Allman, Atlantic City, N J, President-Elect, American Medical Association The presidential address, "Expanding Our Educational Goals," will precede "Rehabilitation of the Upper Extremity Amputee," an invitational address by Dr Henry H Kessler, West Orange, N J Wednesday morning there will be a panel discussion, "The Chronically Ill and Aging—Whose Responsibility?' Wednesday at 2 p m the sixth John Stanley Coulter Memorial Lecture, "Some Problems of Communication in Medicine, as Illustrated by the Coulter Bibliography, will be presented by Dr Frederic T Jung Chicago an assistant editor of THE JOURNAL of the American Medical Association A panel discussion on ethical practices is scheduled for Thursday morning Friday at 10 15 a m Protean Symptomatology Caused by Nasal Sinusitis Showing Minor X-Ray Changes will be discussed by W Gordon Rich M B D M R E (Cambridge) (by invitation), radiologist, St George s Hospital, Christchurch New Zealand Sixty-six other persons will participate by invitation in the sessions The American Academy of Physical Medicine and Rehabilitation (Dr Ben L Boynton Chicago, president) has scheduled its meeting for Monday The scientific session will open with a symposium, Rheumatic Diseases of the Joints and Non-Articular Structures which will be moderated by invitation by Dr Harvey N Vandegrift, Atlantic City and in which the first paper will be an invitational presentation "Clinical Symptomatology of the Various Rheumatic Diseases by Dr James Sydney Stillman chief medical services Robert B Brigham Hospital Boston The meeting will close Monday at 3 30 p m with an invited report of preconvention meetings of the American Association of Electromyography and Electrodiagnosis by its president, Dr Paul A Shea, San Diego Calif The annual dinner of the congress and the academy will be held Wednesday at 7 p m (dress optional) Exhibitors and guests are welcome

HAWAII

Hospital Superintendent Needed—The department of civil service, Territory of Hawaii (825 Mililani St Honolulu 13 T H) is seeking a superintendent for a Hansen s disease hospital Salary is $10,000 with full perquisites including a home domestic service, and food (no children under 16) Employment is through submittal of official application forms and an unassembled examination (rating of training and experience) The hospital is located at the Hansen s Disease Settlement at Kalaupapa on the island of Molokai about 30 miles from the island of Oahu, where Honolulu is located The settlement is virtually inaccessible except by air Features of this assignment are said to include recreational facilities at the settlement, pleasant year-round climate, and extremely fine fishing The position is under civil service and carries vacation benefits, sick leave provisions and a retirement program Applicant must have four years of experience as a physician, of which two years shall have been in an administrative capacity in a hospital, a medical institution providing domiciliary care, or a comparable health agency or program A license to practice medicine in the Territory of Hawaii is required for this position Interested persons should write to the department for application forms and further information

FOREIGN

Rehabilitation in Leprosy—Under the sponsorship of the Sovereign Military Order of Malta, the International Congress for the Defence and Social Rehabilitation of the "Leper" was held in Rome April 16-18 Among the topics discussed were the activity of the World Health Organization in the field of leprosy recent progress in the therapy of leprosy, new trends of the social organization of leprosy control services, prophylaxis and protection of the child, and social, occupational, and surgical rehabilitation The 250 delegates from 51 nations adopted resolutions calling for the abolition of discriminatory laws, a propaganda program for the promotion of public understanding of the true nature of leprosy and removal of all prejudices and superstitions associated with the disease in countries where the latter is a problem adoption of measures for early discovery and treatment of cases, limitation of hospitalization to those whose condition requires special medical and/or surgical treatment and termination on completion of treatment, protection of children from the infection by every approved biological means, with removal to a preventorium only in cases of absolute necessity, and encouragement of governments to grant the moral, social, and medical assistance necessary for the protection and rehabilitation of the seriously disabled through the agency of various governmental departments such as social welfare, agriculture, and education

DEATHS IN OTHER COUNTRIES

Sir Morton Smart, G C V O , D S O , M D , died at his home at Cooden Beach, England, March 16, aged 78 Dr Smart was appointed manipulative surgeon to Edward VIII in 1936, and in 1949 extramanipulative surgeon to George VI, an office continued under the present Queen His first hospital appointment was as medical officer in charge of the electrical department at the Hospital for Sick Children, Great Ormond Street One of his earliest papers on the x-ray diagnosis of renal calculus was published in 1905 The first World War interrupted the preparations he was making to write a book and it was not until 1933 that his Principles of Treatment of Muscles and Joints by Graduated Muscular Contractions was published Dr Smart was consultant to the London Clinic for Injuries Grosvenor Square, and during and after World War II was consultant in physical medicine to the Royal Air Force He wrote on manipulative surgery in the Medical Annual 1936 and was a contributor to many professional journals From 1943 to 1949 he was a member of the physical medicine group committee of the British Medical Association and a member of the central medical war committee For many years he attended members of the royal family, including the Prince of Wales (later Edward VIII) and the Duke of York (later George VI) As far back as 1931 he had been decorated for his services to the Spanish court, and he was also a Chevalier of the Order of St Charles of Monaco

CORRECTION

Ringworm—The Foreign Letter entitled Ringworm (THE JOURNAL July 21, page 1180) contains the statement Man is susceptible to all the ringworm fungi that commonly attack animals with the exception of Microsporum audouini and M gypseum What was meant was that all ringworms that attack man or animals attack both except M audouini, which attacks only man and M gypseum, which attacks only animals

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Various Centers September 4-5 (Part I) Candidates may file applications at any time but they must be received at least six weeks before the date of the examination for which application is made New candidates should apply by formal registration, registered candidates may notify the board indicating desired location date and candidate number Ex Sec., Dr John P Hubbard, 133 South 36th St., Philadelphia 4

BOARDS OF MEDICAL EXAMINERS

ILLINOIS *Examination and Reciprocity* Chicago Oct 9 11 Supt of Regis., Mr Frederic B Selcke Capitol Building Springfield

LOUISIANA *Homeopathic* Subject to call Sec Dr F H Hardenstein 903 Pere Marquette Bldg New Orleans 12

MONTANA *Examination and Reciprocity* Helena Oct. 2-3 Sec. Dr S A Cooney 7 West 6th Ave Helena

NEW HAMPSHIRE *Examination and Reciprocity* Concord, Sept. 12 13 Sec Dr John S Wheeler 107 State House Concord.

OHIO *Endorsement* Columbus Aug 28 and Oct 2 *Examination* Columbus Dec 18 20 Sec Dr H M Platter 21 W Broad St Columbus 15

TEXAS * *Examination and Reciprocity* Fort Worth Dec. 6 8 Applications for examination must be on file at least ten days prior to the meeting date and applications for reciprocity must be complete and on file at least thirty days prior to the meeting date Sec Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2

WEST VIRGINIA *Reciprocity* Charleston July 20 Sec. Dr N H Dyer State Office Bldg No 3 Charleston

ALASKA * On application in Anchorage Fairbanks Juneau and other towns Sec Dr W M Whitehead, 172 South Franklin St Juneau

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

DISTRICT OF COLUMBIA *Examination* Washington Oct. 22 23 Deputy Director Mr Paul Foley 1740 Massachusetts Ave N W Washington

OKLAHOMA *Examination and Reciprocity* Oklahoma City Sept. 28-29 Sec. Dr E F Lester 813 Braniff Bldg. Oklahoma City

OREGON *Examination* Portland Sept. 8 and Dec 1 Dr Earl M Pallett Sec. State Board of Higher Education Eugene

RHODE ISLAND *Examination* Providence Aug. 29 Administrator of Professional Regulation Mr Thomas B Casey 366 State Office Bldg Providence.

TEXAS *Examination* Austin, October Sec., Bro Raphael Wilson 407 Perry-Brooks Bldg., Austin

WISCONSIN *Examination* Madison Sept 21 Milwaukee Dec. 1 Final date for filing application is Sept. 13 Sec. Dr W H. Barber 621 Ransom St. Ripon

ALASKA *Examination and Reciprocity* Anchorage and Juneau, first week of February April June August and November Sec., Dr C Earl Albrecht, Box 1931 Juneau.

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*Basic Science Certificate required.

GOVERNMENT SERVICES

AIR FORCE

Appoint Research Advisor—Dr Frank W Hartman has been appointed medical research advisor to the surgeon general of the U S Air Force Dr Hartman was director of laboratories at the Henry Ford Hospital in Detroit from 1922 to 1925 During World War I, Dr Hartman served with the U S Navy Medical Corps He was the first president and one of the founders of the College of American Pathologists He is a past-president of the American Society of Clinical Pathology, the Detroit Academy of Medicine, and the Detroit Medical Club He is chairman of the board of trustees of the Detroit Institute of Cancer Research and on the board of trustees of the Michigan Cancer Foundation From 1948 to 1950, Dr Hartman was a member of the committee of blood and blood derivatives of the National Research Council and from 1948 to 1952 a member of the pathology study section of the National Institutes of Health Since 1952, he has been an honorary civilian consultant to the surgeon general of the Navy

ARMY

Board Diplomates in Army Medical Service—Each June and December the Surgeon General's Office reviews the number of medical and allied science officers on active duty who have attained certification by one of the American medical specialty boards The June, 1956, figures total 741 board diplomates in the Army Medical Service in nearly 40 different specialties, including clinical chemistry, clinical or industrial or personnel psychology, nutrition, and x-ray and radium physics certification held by Medical Service Corps officers Internal medicine is the most popular medical specialty in the Army, with surgery as a close second, according to the results of the most recent semiannual survey announced by Col Joseph H McNinch, chief of the personnel division in the Office of the Surgeon General When its graduate professional training program was instituted in 1947, the Army Medical Service had only 83 specialists, plus 44 non-Regulars certified by the American boards, making a total of 127 diplomates The number of medical careerists (Regular Army) with specialty diplomas has always been larger than the non-Regulars Certification by a specialty board is one of the objectives of the educational activities conducted in the Army's teaching hospitals

VETERANS ADMINISTRATION

Personal—Dr George M Leiby, director of professional services at the Veterans Administration hospital in New York City, has been appointed manager of the VA research hospital in Chicago, succeeding Dr Michael L Matte, who has been reassigned to the VA hospital in Los Angeles at his own request Dr Leiby has been certified by the American Board of Internal Medicine and by the American Board of Public Health and Preventive Medicine

PUBLIC HEALTH SERVICE

Grants for Research in Hospital Service—Grants for research in hospital service and administration totaling $367,182 have been approved by the Federal Hospital Council, the U S Public Health Service has announced This research, aimed at finding ways to improve the care of patients in hospitals, reduce costs, and help make the benefits of hospital and health services more widely available, is carried on as part of the Hospital Survey and Construction (Hill-Burton) Program Congress has appropriated $1,200,000 for the research phase of the program in the 1957 fiscal year

The grants were made to the University of North Carolina School of Medicine, Chapel Hill, University of Tennessee College of Medicine, Memphis, University of Michigan, Ann Arbor St Louis University, St Louis, Columbia University School of Public Health and Administrative Medicine, New York, Council of Jewish Federations and Welfare Funds New York, Minnesota Department of Health, Minneapolis and American College of Physicians, Philadelphia

Study of Cancer in Africa—The committee on geographical pathology, research commission, International Union Against Cancer, has planned three meetings to study cancer in Africa The first is the Symposium on Cancer of the Liver to be held Aug 24-31, 1956, in Kampala, Uganda, East Africa The tentative program includes (1) Definition of Terms Cirrhosis, Necrosis, Fatty Change, Kwashiorkor, and Primary Cancer of the Liver, (2) Experimental Necrosis, Regeneration and Fibrosis of Liver, (3) World Distribution, Kwashiorkor, Infectious Hepatitis, Cirrhosis and Cancer of the Liver, (4) Pathology of Kwashiorkor, Cirrhosis, Cancer of Liver and Experimental Cancer of Liver, (5) Mechanism of Chemical Carcinogenesis of the Liver of the Rat, (6) Clinical Aspects, Diagnosis, and Therapy of Kwashiorkor, Cirrhosis, Cancer of the Liver, Endocrinological Aspects of Liver Disease, (7) Liver Function Tests and Alteration in Metabolism in Patients with Cirrhosis, (8) Nutritional and Physiological Aspects of Liver Disease, (9) Enzyme Activity of Rat Liver During Carcinogenesis, and (10) Enzyme Activity of Hepatic Tissue in Kwashiorkor

This symposium in Kampala should afford the opportunity for scientists from different parts of the world to meet, to examine each other's material, and have an exchange of ideas with the view of improving the knowledge of liver disease and cancer in Africa and of stimulating new studies along these lines About 27 participants, representing 10 countries, were expected This meeting is being generously supported by the British Empire Cancer Campaign, the Medical Research Council and the Colonial Office, and by the cancer organizations in the countries from which the delegates are coming

Immediately following the meeting in Kampala, most of the participants will continue on to a meeting arranged for Sept 1-5, 1956, in Leopoldville, Belgian Congo This meeting is being supported by the Louvanian University, Leopoldville, and the Belgian government The meeting in Leopoldville will be on a broader scale than that of Kampala and will consider not only all forms of cancer in Africa, but all forms of cancer in relation to other diseases, geography, and race There will be specialized presentations on the geography of Africa south of the Sahara Desert There will be a special presentation regarding the characteristics of the different ethnic groups that inhabit this area Cancer in the African Negro will be discussed in relation to cancer in other races Nutrition, avitaminosis, siderosis of the liver, peptic ulcer, and parasites will be discussed in relation to cancer and to other diseases A central repository for pathological specimens from Africa will be considered A large part of the program will be devoted to consideration of methods for the collection of statistical data within stated geographical limits Time will be set aside to consider what problems for research can be recommended for study in Africa

Following the meeting in Leopoldville, several of the participants will go on to Dakar, French West Africa, to accept the invitation of the high commissioner of the government of the French Republic in West Africa to study the types of cancer and related diseases that may be observed in the hospitals of Dakar Those accepting the invitation, about 12 individuals, will be guests of the governor general The meetings will include visits to the Native Central Hospital and to the Principal Hospital and inspection of the Institut Pasteur A side trip to the Nutritional Study Center, a little distance from Dakar, will allow the group to observe the work in progress there The main meetings will be held at the medical school in Dakar

DEATHS

Rennie, Thomas Alexander Cumming ⊕ New York City, born in Motherwell Scotland, Feb 28, 1904, Harvard Medical School, Boston 1928 interned at the Peter Bent Brigham Hospital in Boston, at one time taught at the University of Michigan Medical School, Ann Arbor, and the Johns Hopkins University School of Medicine in Baltimore associate professor of psychiatry at Cornell University Medical College from 1941 to 1950, when he became professor of psychiatry (social psychiatry) chairman of the New York City Community Mental Health Board, served as vice-president of the board of directors of the National Association for Mental Health, trustee of the American Foundation for Mental Health and a member of the Mellon Advisory Committee at Vassar College Poughkeepsie, N Y, of the National Mental Health Committee, and of the Social Science Research Council, fellow of the American Psychiatric Association and the New York Academy of Medicine, member of the New York Society for Clinical Psychiatry, American Psychosomatic Society, American Psychopathological Association, and the American Association for the Advancement of Science certified by the National Board of Medical Examiners, from 1937 to 1941 visiting psychiatrist at the Baltimore City Hospital, consultant in psychiatry at the Veterans Administration Hospital (Franklin Delano Roosevelt) in Montrose, N Y, attending psychiatrist at the New York Hospital, associate editor, *Psychosomatic Medicine,* contributing editor to the *International Journal of Group Psychotherapy* and co-editor of the *International Journal of Social Psychiatry* co-author of "Mental Health in Modern Society," "Vocational Rehabilitation of Psychiatric Patients, and "Vocational Services for Psychiatric Clinic Patients" died in the New York Hospital May 21, aged 52, of cerebral hemorrhage

Russum, Benjamin Carl ⊕ Omaha, born in Topeka, Kan, Jan 6 1892 John A Creighton Medical College, Omaha, 1916, joined the faculty of his alma mater, now known as the Creighton University School of Medicine in 1922 as an instructor, later became professor of pathology and bacteriology, and since 1947 professor of pathology and head of the department specialist certified by the American Board of Pathology fellow of the College of American Pathologists and the American Society of Clinical Pathologists, of which he was a charter member, member of the American Public Health Association, the International Association of Medical Museums, and the American Association for the Advancement of Science, president of the Physicians Health Association, past-president of the Omaha-Midwest Clinical Society and the Nebraska Association of Pathologists veteran of World War I director of laboratories, St. Joseph's Hospital on the staffs of St. Catherine's and Douglas County hospitals pathologist for the Union Pacific Railroad, formerly editor of the *Journal of the Omaha-Midwest Clinical Society,* died May 25 aged 64 of coronary thrombosis

Heiner, Robert Graham ⊕ Captain U S Navy, retired, Washington, D C, born in Fort Randall S D, Jan 6, 1877, University of Virginia Department of Medicine Charlottesville, 1900 entered the naval service and was appointed assistant surgeon on Jan 15 1904, served with the Navy medical department throughout the United States and abroad, during World War I was commended for services aboard the USS Mount Vernon and as medical aide and liaison officer to a patrol force evacuating Army wounded from Army Base no 8, St Nazaire, France, served with distinction as medical officer to the Legation Guard at Peiping China, from 1930 to 1933, decorations consisted of World War I Victory medal with "Overseas" clasp, Second Nicaraguan Campaign medal, Yangtze Service medal, American Campaign medal, World War II Victory medal, and Medal of Merit with Silver Star (Nicaragua), after completing more than 35 years of service, retired from the Navy on Sept 1, 1939 recalled to active duty and served as medical officer in the Fifth Naval District from 1943 to 1945, fellow of the American College of Surgeons, died in the U S Naval Hospital, Bethesda, Md, June 7, aged 79 of pulmonary embolus and bronchogenic carcinoma

Reynolds, Frederick P ⊕ Colonel, U S Army, retired, Santa Barbara, Calif, born in Elmira, N Y, Aug 10, 1867, University of Pennsylvania Department of Medicine, Philadelphia, 1890 commissioned in the regular Army May 26 1892, rose through the various grades to that of colonel May 15, 1917, retired Nov 15, 1923, after 30 years service, veteran of the Spanish-American War, served on the Mexican Border in 1916, was with the American Expeditionary Force in France, first in the chief surgeon's office and then for a year as chief surgeon of the advanced sector, for his service in World War I received the Distinguished Service medal and was named by France as an officer of the Legion d Honneur and as an officer of the Legion d Honneur des Epidemies, also held five campaign service medals, later appointed professor of military hygiene at the U S Military Academy, as executive secretary of the committee of medical education of the New York Academy of Medicine, was instrumental in organizing the "Graduate Fortnight" died in St Francis Hospital May 18, aged 88, of arteriosclerosis with nephrosclerosis

Kagy, Edwin Stewart ⊕ New Orleans, born in Alma, Ark, Jan 30, 1909, Tulane University School of Medicine, New Orleans, 1934, interned at Charity Hospital of Louisiana, commissioned in the regular Medical Corps of the Army in August, 1935, and was ordered to the Philippines in the fall of 1940, was at Corregidor when Bataan fell and was taken prisoner, in the fall of 1943 was transferred from the Philippines to Tokyo, awarded the Bronze Star medal by direction of the President for outstanding courage and medical ability in protecting the health and lives of fellow prisoners while serving as surgeon and physician at the Omori, Shinagawa, Niigata, and Tokyo 3D prison camps in Japan from September, 1943, to August, 1945, also awarded the Purple Heart medal and two Oak Leaf Clusters, served on the faculty of Louisiana State University School of Medicine, on the staff of Southern Baptist Hospital, died May 28, aged 47, of bronchopneumonia

Jackson, George Henry, Jr ⊕ Evanston, Ill, born at Natick, Mass, Aug 17, 1890, Harvard Medical School, Boston, 1918, interned at the Hartford (Conn) Hospital, Children's Hospital in Boston, the Massachusetts General Hospital, and the Infants Hospital in Boston, volunteer assistant in pathology at the Peter Bent Brigham Hospital in Boston for two months, formerly practiced in Chicago, where he was a resident surgeon at the Children's Memorial Hospital, a fellow in orthopedics at the S A. Sprague Memorial Institute, University of Chicago, assistant professor of surgery at Rush Medical College, and on the staff of the Presbyterian Hospital, entered the Mayo Foundation in Rochester, Minn, on Sept. 21, 1921, and left June 1, 1923, member of the American Association for the Advancement of Science and the Oxford Bibliographical Society, Oxford, England, died April 11, aged 65, of a heart attack

Sputh, Carl Brosius, Sr ⊕ Indianapolis, born in Indianapolis in 1884 Indiana University School of Medicine, Indianapolis, 1912 member of the American Academy of Ophthalmology and Otolaryngology, fellow of the International College of Surgeons and the American College of Surgeons, specialist certified by the American Board of Otolaryngology, from 1934 to 1941 president of the Normal College of American Gymnastic Union (now part of Indiana University), from 1913 to 1916 health and physical director at La Crosse (Wis) State Teachers College, for many years on the consulting staffs of Methodist, St Vincent's, and Indianapolis General hospitals, and St Francis Hospital in Beech Grove, Ind., in 1941 awarded an honorary master of science degree from Indiana University, where he served as a faculty member of the medical school, died April 8, aged 71

McGaughey, James David ⊕ Wallingford, Conn, Jefferson Medical College of Philadelphia, 1910, medical examiner for the town of Wallingford, member of the American Academy of General Practice, past-president and vice-president of the New Haven County Medical Society, served overseas during World War I and with the Connecticut State Guard during World War II,

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⊕ Indicates Member of the American Medical Association

school physician to the Choate School, member of the board of directors and senior attending physician at the Meriden (Conn) Hospital, died in the Gaylord Farm Sanatorium April 18, aged 73, of arteriosclerotic cardiovascular renal disease and pulmonary infarction

O'Shea, William Michael ⊕ Seattle, born in Salem, Mass, Sept 1, 1887, Harvard Medical School, Boston, 1912, past-president of the King County Medical Society, member of the Puget Sound Surgical Society and Pacific Coast Obstetrical and Gynecological Society, fellow of the American College of Surgeons, for many years member of the state board of medical examiners, veteran of World War I, in September, 1950, the Dr William M O'Shea Children's Orthopedic Guild was named in his honor, on the staffs of the Providence, Virginia Mason, Swedish, and King County hospitals, died May 3, aged 68, of cerebral hemorrhage

Stewart, Henry, Gettysburg, Pa, born Oct 27, 1868, University of Pennsylvania Department of Medicine, Philadelphia, 1892, specialist certified by the American Board of Pathology, member of the College of American Pathologists, past-president and for many years secretary of the Adams County Medical Society, served twice as county coroner, for more than a decade, secretary of the city board of health, from 1906 to 1935 first registrar of vital statistics for Gettysburg, an associate member of the American Medical Association, for many years on the staff of the Annie M Warner Hospital, died March 22, aged 87

Miller, Robert Horace ⊕ Nashville, Tenn, College of Physicians and Surgeons, Memphis, 1911, for many years member of the Tennessee Anatomical Board, visiting professor of anatomy at the Meharry Medical College, formerly associate professor of anatomy and assistant dean at the University of Tennessee College of Medicine in Memphis, at one time taught at the University of Missouri in Columbia and Creighton University in Omaha, served on the staff of the Memphis (Tenn) General Hospital, author of "Applied Anatomy Functional and Topographical", died April 27, aged 77, of coronary occlusion

Andrews, Benjamin Franklin ⊕ Evanston, Ill, College of Physicians and Surgeons of Chicago, 1894, specialist certified by the American Board of Otolaryngology, at one time a medical missionary in Mexico, died in the Evanston Hospital June 13, aged 92, of pneumonia and multiple infarcts of kidney

Braun, Jerome ⊕ Commander, U S Navy, retired, Dallas, Texas, Medical Department of Tulane University of Louisiana, New Orleans, 1910, served during World War I, entered the U S Navy on Jan 3, 1921, retired Feb 1, 1936, died May 14, aged 75, of cerebral hemorrhage

Brooks, William Henry ⊕ Monticello, Utah, Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N C, 1947, interned at the North Carolina Baptist Hospital in Winston-Salem, N C, and the U S Marine Hospital in Norfolk, Va, retired from the U S Public Health Service May 3, 1950, on the staff of the San Juan County Hospital, where he died May 4, aged 39, of acute myocardial infarction

Brown, Samuel Elkan ⊕ Colonel, U S Air Force, retired, San Antonio, Texas, University of Virginia Department of Medicine, Charlottesville, 1905, served during World War I, entered the regular Army in 1920, transferred to the U S Air Force and was retired May 31, 1946, much of his military service was with the Air Corps section of the Army, and considerable time was spent at California stations, particularly March Field, died in the Brooke Army Hospital recently, aged 73, of arteriosclerotic heart disease and pulmonary emphysema

Carter, Henry Rose, Jr ⊕ Birmingham, Ala, University of Pennsylvania Department of Medicine, Philadelphia, 1908, specialist certified by the American Board of Internal Medicine, served on the staffs of the Jefferson-Hillman University Hospital, Children's Hospital, St Vincent's Hospital, and the Birmingham Baptist Hospital, died at his summer home in Guntersville April 16, aged 73, of cerebral thrombosis

Frick, Adelaide Howard Childs, New York City, Yale University School of Medicine, New Haven, Conn, 1943, member of the Medical Society of the State of New York, certified by the National Board of Medical Examiners, specialist certified by the American Board of Pediatrics, on the staff of the New York Hospital, died in the Presbyterian Hospital March 30, aged 41, of adenocarcinoma of the colon

Harmison, Frank B ⊕ Chicago, Rush Medical College, Chicago, 1896, retired in 1953 after 25 years as a physician in the contagious disease section of the city health department, died June 10, aged 86, of coronary thrombosis

Heraty, James Edmund ⊕ La Crosse, Wis, Wisconsin College of Physicians and Surgeons, Milwaukee, 1901, veteran of World War I, past-president and secretary of the La Crosse County Medical Society, on the staffs of St Francis and La Crosse hospitals, died April 23, aged 81, of bronchopneumonia and bronchiectasis

Hewitt, John Everett, Wakefield, Kan, University Medical College of Kansas City, Mo, 1899, served during World War I, formerly an officer in the regular Army, died in the U S Army Hospital, Fort Riley, May 1, aged 80, of cirrhosis of the liver

Hines, Kenneth Arden ⊕ Meadville, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1927, member of the Industrial Medical Association, on the staff of the Meadville City Hospital, died May 10, aged 57, of coronary occlusion

Hottinger, Erwin Stauer, Chicago, Northwestern University Medical School, Chicago, 1906, veteran of World War I, died in the Veterans Administration Hospital, Hines, May 31, aged 72, of a bleeding ulcer

Hughes, Leonidas ⊕ Faubush, Ky, Barnes Medical College, St Louis, 1899, died May 11, aged 80, of cerebral hemorrhage

Hull, Henry Clay ⊕ Washington, Iowa, Northwestern University Medical School, Chicago, 1898, served during World War I, died April 21, aged 81, of congestive heart disease

Jacks, Oscar ⊕ Jersey City, N J, University and Bellevue Hospital Medical College, New York City, 1914, physician for the city board of education, on the board of directors of the Fairmount Hospital, on the staff of the Jersey City Medical Center and the Greenville Hospital, died April 29, aged 65, of coronary disease

John, George W ⊕ Beloit, Wis, Northwestern University Medical School, Chicago, 1927, veteran of World War I, for many years physician for the Beloit Iron Works, member and past-president of the staff of the Beloit Municipal Hospital, died May 9, aged 58, of cerebral hemorrhage, arteriosclerosis, and uremia

Johnson, Arthur Collins, Portsmouth, Va, Leonard Medical School, Raleigh, N C, 1910, died in the Maryview Hospital April 26, aged 80, of carcinoma of the pancreas

Johnston, Ernest H ⊕ Waterbury, Conn, University of Maryland School of Medicine, Baltimore, 1900, on the staffs of the St Mary's Hospital and the Waterbury Hospital, where he died May 3, aged 77, of bronchopneumonia and adenocarcinoma of the rectosigmoid

Johnson, Robert Franklin, Chicago, University of Chicago, the School of Medicine, Chicago, 1955, intern at San Francisco (Calif) Hospital, died in Yosemite, Calif, May 27, aged 28, in an accidental fall while hiking

Jones, Melvin Rivers, New Orleans, Louisiana State University School of Medicine, New Orleans, 1952, interned at the U S Naval Hospital in Philadelphia, served in the U S Naval Reserve, resident in ophthalmology at the Charity Hospital of Louisiana, where he died May 11, aged 27, of emboli of the lungs as the result of an automobile accident on April 16

Jones, Kneeland Parr ⊕ Kansas City, Mo, Bellevue Hospital Medical College, New York City, 1885, died April 20, aged 94, of coronary arteriosclerosis

Jones, Murrell Douglas Thornton, Bluffton, Ind, Baylor University College of Medicine, Houston, Texas, 1951, interned at Cambridge City Hospital in Cambridge, Mass, died in Atlantic City, N J, May 5, aged 28

Keay, Forrest Lincoln ⊕ Rochester, N H, Dartmouth Medical School, Hanover, 1894, for many years Strafford County medical referee, member of the board of health on the staff of the Frisbie Memorial Hospital, died April 27 aged 91, of cancer and arteriosclerotic heart disease

Kelly, William Henry, Sanford Maine, Baltimore Medical College, 1905, died Feb 18, aged 87, of coronary heart disease and arteriosclerosis

Killian, Frederick William, Philadelphia, Jefferson Medical College of Philadelphia 1905 died April 6 aged 76

Kimbrough, Ernest Moore ⊕ Haskell, Texas Baylor University College of Medicine, Dallas, 1935 interned at the Hermann Hospital in Houston, where he served a residency, fellow of the American College of Surgeons served during World War II county health officer on the staffs of the Hendrick Memorial Hospital in Abilene and the Haskell County Hospital died May 6, aged 46 of coronary occlusion

Kimmel, Orlando Perry, New Madison Ohio, Eclectic Medical Institute, Cincinnati, 1890 on the staff of the Reid Memorial Hospital in Richmond, Ind died April 11 aged 89 of senility

Kincaid, John Luther, Maplesville Ala Birmingham Medical College, 1912, died in Montgomery April 4, aged 72 of injuries received in an automobile accident

King, Dale Murray, Detroit, Cleveland University of Medicine and Surgery, 1896 served on the staffs of the Grace Hospital and the City of Detroit Receiving Hospital, where he died April 29, aged 81 of intracerebral hemorrhage

Klein, Henry Nicholas ⊕ St. Paul, University of Minnesota College of Medicine and Surgery Minneapolis 1905, veteran of the Spanish-American War and World War I served on the staffs of Ancker, Charles T Miller, and St Luke s hospitals, and St Joseph s Hospital where he died April 16, aged 74, of carcinoma of the prostate with metastases to the bones

Klasons, Boris ⊕ Nassau, N Y , Latvijas Universitäte Medicinas Fakultate, Riga, Latvia, 1940 interned at the Memorial Hospital in Albany, aged 43, shot and killed by a patient June 2

Lath, Eugene Mabley, Rochester, N Y University of Buffalo School of Medicine Buffalo, 1907 an associate member of the American Medical Association on the staff of St Mary s Hospital member of the board of directors of Park Avenue Hospital where he died May 15, aged 79 of cancer

Love, Robert Sidney ⊕ Oklahoma City University of Tennessee College of Medicine Memphis 1917 died May 16 aged 67 of coronary thrombosis

McCanty, William Lee ⊕ Helmuth, N Y University of Buffalo School of Medicine 1915 veteran of World War I for many years on the staff of the Gowanda State Homeopathic Hospital died in the Buffalo General Hospital April 26 aged 64 of arteriosclerosis

McClane, John William, Fernandina Beach Fla Bennett Medical College Chicago 1914 member of the Florida Medical Association veteran of World War I health officer of Baker-Nassau Counties for many years died May 3 aged 66

McGuire, John ⊕ Bluefield, W Va , Medical College of Virginia Richmond 1915, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology veteran of World War I, on the staffs of St Luke s Hospital and Bluefield Sanitarium where he died June 9 aged 67 of complications following brain abscess

McIver, Lynn ⊕ Sanford N C Kentucky University Medical Department Louisville 1901 for many years chairman of the school board past president of the Lee County Medical Society died in the Lee County Hospital May 14 aged 80 of a ruptured varix

McKinley, Charles Franklin, Atmore Ala Medical College of Alabama Mobile 1907, died May 11, aged 73

McLandress, George Stuart, Long Beach, Calif , Saginaw (Mich) Valley Medical College 1899 fellow of the American College of Surgeons died in the Long Beach Community Hospital April 16, aged 83 of carcinoma of the prostate

Mandelbaum, M Joseph ⊕ New York City, Albany (N Y) Medical College, 1902, associated with the Hospital for Joint Diseases died May 8, aged 74, of leukemia

Manion, Katherine C , Coronado, Calif University of Oregon Medical School, Portland, 1903, at one time practiced in Portland, Ore and was treasurer of the Oregon State Medical Association, died in El Cajon April 23, aged 93 of heart disease

Manley, Marcus Leo ⊕ Chicago, Creighton University School of Medicine, Omaha 1923, on the staff of the Little Company of Mary Hospital, Evergreen Park, where he died May 9, aged 58, of coronary disease

March, Linton Ellsworth ⊕ Birdsboro, Pa., Jefferson Medical College of Philadelphia, 1934 veteran of World War II interned at the Reading (Pa) Hospital died April 23, aged 47, of coronary occlusion

Martin, John Walter ⊕ Bethesda, Md Northwestern University Medical School, Chicago, 1903 member of the Medical Society of the District of Columbia and the American Academy of Dermatology and Syphilology fellow of the American College of Surgeons died May 22, aged 75 in the Doctors Hospital Washington D C , of acute meningitis

Mays, Arthur Hugh, Newman, Calif Medical Department of the University of California, San Francisco, 1887, for many years practiced in Sausalito, past-president of the Marin County Medical Society, died April 19, aged 89

Mensch, Harvey George ⊕ Elizabeth, N J Jefferson Medical College of Philadelphia 1926 member of the Industrial Medical Association, interned at Allegheny General Hospital in Pittsburgh veteran of World War II, on the staff of the Elizabeth General Hospital and Dispensary, died May 2, aged 55

Merritt, Robert Elmer, Pauma Valley, Calif Tufts College Medical School Boston, 1917, died in Escondido April 5, aged 67

Metcalf, George Bradley ⊕ Anderson, Ind , Indiana University School of Medicine, Indianapolis 1920, formerly secretary of the Madison County Medical Society, died in the Robert W Long Hospital, Indianapolis March 13, aged 64

Milliette, Delphis Russell ⊕ Anna, Ohio Medical College of Ohio Cincinnati, 1903 for many years served on the village board of education and the Shelby County board of education, died April 16 aged 83

Mirkin, Charles Simpson, New York City University and Bellevue Hospital Medical College New York City 1919, member of the Medical Society of the State of New York died May 14 aged 58 of coronary disease

Mitchell, William Earl, Oakland Calif University of Colorado School of Medicine Denver 1913 specialist certified by the American Board of Surgery fellow of the American College of Surgeons an associate member of the American Medical Association on the staff and trustee at the Samuel Merritt Hospital died in Berkeley May 22, aged 67, of arteriosclerotic heart disease

Monroe, Duncan J ⊕ Elkton Mich Saginaw Valley Medical College Saginaw 1903 on the staff of the Hubbard Memorial Hospital in Bade Axe died April 21 aged 81 of medullary carcinoma

Montgomery, Carl S ⊕ Stockland Ill Illinois Medical College Chicago 1903 died April 26 aged 80

Morgan, Vance Fredrick ⊕ Harrah, Okla University of Oklahoma School of Medicine Oklahoma City, 1934, formerly director of the Comanche County Health Department in Lawton, died April 13 aged 46 in an automobile accident

Moriarty, John Joseph, Bloomfield N J , Georgetown University School of Medicine, Washington D C , 1930 served during World War II on the staff of St. Vincent s Hospital in Montclair died May 23 aged 53 of uremia and malignant hypertension

Morton, William Glaspell, Pasadena Calif , State University of Iowa College of Medicine, Iowa City, 1905, died April 20, aged 73

Mosher, Benjamin D , Sandwich, Ill Keokuk (Iowa) Medical College, 1898 veteran of World War I, on the staff of the Horatio N Woodward Memorial Hospital, died in the Mendota (Ill) Community Hospital May 14, aged 81, of thrombosis

Moss, Harry Joseph, Beverly Hills, Calif, Jefferson Medical College of Philadelphia, 1906, past-president of the Maryland Hospital Association, formerly on the editorial advisory board of *Hospital Management*, died in the Mount Sinai Hospital, Los Angeles, April 20, aged 72, of carcinoma of the rectum with metastases

Muehlig, George Florian, Ann Arbor, Mich, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1912, member of the Michigan State Medical Society, for many years associated with St Joseph's Mercy Hospital, where he was past-chief of staff, at one time a fellow in medicine at the Mayo Foundation in Rochester, Minn, died March 31, aged 67, of ventricular fibrillation

Muetz, Walter ⊕ Houston, Texas, Medizinische Fakultat der Universitat, Vienna, Austria, 1935, member of the American Academy of General Practice, died April 3, aged 45, in an automobile accident

Murphy, Patrick Humphrey William ⊕ Jersey City, N J, Georgetown University School of Medicine, Washington, D C, 1928, during World War II an examining physician for Selective Service, on the staff of the Hudson County Institution for Geriatric Care in Secaucus, the Christ Hospital, and the Medical Center of Jersey City, died April 6, aged 55, of a heart attack

Murray, Alexander Eston ⊕ Beaverdam, Va, Medical College of Virginia, Richmond, 1905, past-president of the Hanover County Medical Society, for many years local surgeon for the Chesapeake and Ohio Railway Company, died April 28, aged 78, of cancer of the throat

Mussell, Arthur Robert, Clare, Mich, Bennett Medical College, Chicago, 1912, died in the Clare General Hospital April 15, aged 70, of medullary failure, cerebral edema, and peripheral vascular collapse

Nellans, Charles Thomas ⊕ Roswell, Ga, Rush Medical College, Chicago, 1919, at one time on the faculty of Yale University School of Medicine in New Haven, Conn, formerly full-time physician to the U S Federal Penitentiary in Atlanta, retired from the Veterans Administration in Atlanta Dec 31, 1952, died April 12, aged 61, of arteriosclerosis

Ney, Grover C ⊕ Baltimore, Johns Hopkins University School of Medicine, Baltimore, 1908, member of the founders group of the American Board of Surgery, fellow of the American College of Surgeons, on the staff of the Sinai Hospital, died April 11, aged 70

Nichols, Frederick Graham ⊕ Seattle, University of Oregon Medical School, Portland, 1913, an examiner for the Washington State Athletic Commission from 1931 to 1935, died April 12, aged 83

Nichols, William Sowell, Lake City, Fla, Vanderbilt University School of Medicine, Nashville, Tenn, 1922, member of the Florida Medical Association, died March 28, aged 56, of coronary occlusion

Nielson, Karl O ⊕ Heber, Utah, Rush Medical College, Chicago, 1936, interned at the Salt Lake General Hospital in Salt Lake City, died in the Heber Hospital May 12, aged 51, of heart disease

Notkin, Meyer ⊕ Paterson, N J, University of Michigan Medical School, Ann Arbor, 1932, specialist certified by the American Board of Internal Medicine, past-president of the Passaic County Heart Association, fellow of the American College of Cardiology, served during World War II, on the staff of St Joseph Hospital, died in Rivervale April 25, aged 49, of acute coronary thrombosis

Noth, Henry William ⊕ Minneapolis, University of Minnesota College of Medicine and Surgery, Minneapolis, 1903, died March 27, aged 78, of emphysema and arteriosclerosis

Ogden, Chester R, Clarksburg, W Va, Hospital College of Medicine, Louisville, Ky, 1902, an associate member and from 1916 through 1920 member of the House of Delegates of the American Medical Association, past-president and for many years member of the council of the West Virginia State Medical Association, served as president and secretary of the Harrison County Medical Society, fellow of the American College of Surgeons, formerly on the staff of St Mary's Hospital, died May 31, aged 83

Osborn, Benjamin David ⊕ Waldo, Ohio, Starling Medical College, Columbus, 1897, died May 3, aged 83, of heart disease

Otten, Erich ⊕ Indianapolis, Rush Medical College, Chicago, 1932, member of the American Psychiatric Association and the Illinois State Medical Society, on the staff of the Central State Hospital, died in the Robert W Long Hospital May 5, aged 53, of pulmonary thrombosis

Packer, John McKinley ⊕ Ashland, Neb, Eclectic Medical College, Cincinnati, 1915, veteran of World War I, on the staff of the Doctors Hospital, Omaha, where he died June 6, aged 72, of cerebral hemorrhage

Palmateer, Arthur Clare ⊕ New York City, College of Physicians and Surgeons, Baltimore, 1906, on the staff and past-president of the medical board, St Joseph's Hospital, on the staff of Bronx Eye and Ear Infirmary, died in the University Hospital April 27, aged 74, following a gallbladder operation

Palmer, Martin ⊕ Hazard, Ky, University of Louisville School of Medicine, 1930, member of the American Academy of General Practice, on the staff of the Mount Mary Hospital, where he died April 17, aged 54, of coronary thrombosis

Pater, Stanley John ⊕ Hamilton, Ohio, St Louis University School of Medicine, 1926, on the staffs of Mercy and Fort Hamilton hospitals, died in Brookville, Ind, April 15, aged 55, of carcinoma of the larynx

Peddicord, Harper ⊕ Redwood City, Calif, Southern Homeopathic Medical College, Baltimore, 1899, veteran of the Spanish-American War, formerly county health officer, on the staff of the Sequoia Hospital, died May 7, aged 81, of coronary thrombosis

Penhall, Fletcher Wellington ⊕ Morton, Minn, Trinity Medical College, Toronto, Canada, 1889, Bellevue Hospital Medical College, New York City, 1891, past-president of the Renville County Medical Society, formerly on the staff of the Willmar (Minn) State Hospital, served on the village council and on the board of education, died in Redwood Falls April 1, aged 93

Perdue, James Devote ⊕ Mobile, Ala, Medical College of Alabama, Mobile, 1913, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology, for many years member of the board of censors, Alabama State Medical Association, fellow of the American College of Surgeons, veteran of World War I, on the staffs of the City and Providence hospitals, died May 18, aged 67, of hypertensive heart disease

Perrier, Joseph Louis, New York City, University and Bellevue Hospital Medical College, New York City, 1913, died in the Knickerbocker Hospital May 4, aged 82

Petit, Henri Louis, Chehalis, Wash, College of Physicians and Surgeons, Boston, 1907, past-president of the Lewis County Medical Society, served on the staff of St Helen Hospital, where he died April 17, aged 77, of cerebral hemorrhage

Petritz, Louis James ⊕ Los Angeles, Northwestern University Medical School, Chicago, 1918, veteran of World War I, for many years surgeon for the city fire department, on the staff of Queen of Angels Hospital, died May 17, aged 62, of carcinoma of the stomach

Petruzzi, Joseph Anthony, Elmsford, N Y, Tufts College Medical School, Boston, 1930, member of the Medical Society of the State of New York, physician for the police department, village of Elmsford, where he was physician for the schools, on the staff of the Phelps Memorial Hospital in North Tarrytown, died April 19, aged 50, of acute coronary occlusion

Phelan, Joseph Robert, Oklahoma City, Barnes Medical College, St Louis, 1898, past-president of the Oklahoma State Medical Association, died in Norman March 25, aged 83, of a heart attack

Phillips, Orlyn Sargent, National City, Calif, George Washington University School of Medicine, Washington, D C, 1907, served in France during World War I, formerly associated with the U S Public Health Service Reserve, died April 10, aged 79, of arteriosclerosis

Pierce, Glenn McKillips, McKeesport, Pa; Harvard Medical School, Boston, 1911; an associate member of the American Medical Association; on the staff of the McKeesport Hospital, where he died May 1, aged 70, of a fractured hip, bronchopneumonia and coronary thrombosis

Pinson, Chris Henderson ⊕ Alpharetta, Ga; Memphis (Tenn) Hospital Medical College, 1906; veteran of World War I; died April 9, aged 74, of coronary thrombosis and arteriosclerosis

Potts, William Joseph, Jr ⊕ Kane, Pa; University of Pittsburgh School of Medicine, 1945; interned at St Vincent's Hospital, Erie, where he served a residency; died May 6, aged 35, of coronary occlusion

Powell, George F, Abilene, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1889; for many years superintendent of the Terrell (Texas) State Hospital; died May 6, aged 92, of myocarditis

Prentice, George Lee ⊕ Troy, Iowa; Rush Medical College, Chicago, 1900; past president of the Davis County Medical Society; veteran of World War I; on the staff of the Ottumwa (Iowa) Hospital; formerly on the staff of the Indiana State Soldiers Home Hospital, Lafayette, Ind, and the National Home for Disabled Volunteer Soldiers in Danville, Ill; died in Ottumwa April 22, aged 77, of coronary disease

Prince, Charles Calvin, Long Beach, Calif; College of Medical Evangelists, Loma Linda and Los Angeles, 1930; certified by the National Board of Medical Examiners; an associate member of the American Medical Association; on the staffs of St Mary's Long Beach Hospital, Long Beach Community Hospital, and the Seaside Memorial Hospital; died April 28, aged 51, of hypertension and arteriosclerosis

Promin, David ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1927; specialist certified by the American Board of Obstetrics and Gynecology; fellow of the International College of Surgeons and the American College of Surgeons; on the staffs of the Abington (Pa) Memorial Hospital, Frankford and Albert Einstein Medical Center hospitals; died May 26, aged 53, of coronary thrombosis

Proudfoot, Charles Paris, Arcadia, Calif; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; died in Pasadena May 10, aged 83, of coronary thrombosis and arteriosclerosis

Pulaski, Leo Edward ⊕ Shenandoah, Pa; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; interned at the Mercy Hospital in Baltimore; during World War I accepted an appointment to the West Point Military Academy; on the staff of the Locust Mountain State Hospital; past president of the Shenandoah Medical Society; school physician; died in the Hospital of the University of Pennsylvania, Philadelphia, May 6, aged 57, of rheumatic heart disease

Quick, Edward William ⊕ Milwaukee; Rush Medical College, Chicago, 1902; fellow of the American College of Surgeons; on the staffs of the Evangelical Deaconess Hospital and the Columbia Hospital, where he died April 10, aged 86, of bleeding duodenal ulcer and peritonitis after gastric resection

Ragle, Benjamin Harrison ⊕ Boston; Harvard Medical School, Boston, 1916; specialist certified by the American Board of Internal Medicine; member of the Endocrine Society; fellow of the American College of Physicians; consultant, Massachusetts General Hospital, and member of visiting staff, Massachusetts General Hospital, Phillips House; on the courtesy staff, Mount Auburn Hospital, Cambridge; member of the board of trustees, Austen Riggs Foundation in Stockbridge; died May 1, aged 67, of cerebral hemorrhage

Ramey, Ralph Emerson ⊕ Blacklick, Ohio; Ohio State University College of Medicine, Columbus, 1928; veteran of World War I, medical examiner for the armed forces during World War II; died in Whitehall April 10, aged 57, of coronary occlusion

Rayner, Herbert Wollesley, Sacramento, Calif; Rush Medical College, Chicago, 1901; on the staffs of the Sutter Hospital and the Mercy Hospital, where he died May 16, aged 83, of arteriosclerotic heart disease

Reed, Torrance ⊕ Grand Rapids, Mich; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; veteran of World War I; on the staffs of the Butterworth and St Mary's hospitals, and the Blodgett Memorial Hospital, where he died April 26, aged 66, of cerebral thrombosis

Reich, Joseph Paul ⊕ Chicago; Schlesische Friedrich Wilhelms-Universitat Medizinische Fakultat, Breslau, Prussia, Germany, 1910; specialist certified by the American Board of Psychiatry and Neurology; at one time on the faculty of the Chicago Medical School; on the staff of the Michael Reese Hospital; died April 23, aged 68, of cerebral hemorrhage and cerebral arteriosclerosis

Reichert, Rudolph Joe ⊕ Norman, Okla; State University of Iowa College of Medicine, Iowa City, 1930; served during World War II; on the staff of the Central State Griffin Memorial Hospital; died May 7, aged 57, of myocardial infarction

Renton, George Wellington ⊕ Detroit; Western University Faculty of Medicine, London, Ontario, Canada, 1916; during World Wars I and II served in the Canadian Army as a major in the Medical Corps; after World War I worked with the Department of Veterans Affairs, London, Ontario, until 1923, when he came to Detroit; associated with the Dearborn (Mich) Medical Center; on the staffs of the Mount Carmel Mercy Hospital and Providence Hospital, where he died June 10, aged 62, of cancer

Resseguie, Frederic John ⊕ Saratoga Springs, N Y; Albany (N Y) Medical College, 1895; president of the Saratoga National Bank; fellow of the American College of Surgeons; member of the honorary staff as consulting surgeon, Saratoga Hospital, where he served in various capacities; died May 12, aged 81, of coronary thrombosis

Richardson, Alfred Lawrence, La Grande, Ore; American Medical College, St Louis, 1890; at one time mayor of La Grande; died May 8, aged 89

Riester, Herman William ⊕ Erie, Pa; University of Pittsburgh School of Medicine, 1931; served during World War II; acting assistant surgeon for the U S Public Health Service; active on the surgical staff at the Hamot Hospital, where he interned, and where he died May 8, aged 49, of pneumonia

Riggs, George Elmer ⊕ Muskogee, Okla; University of Oregon Medical School, Portland, 1911; associated with the Regional Office of the Veterans Administration; died in the Veterans Administration Hospital March 6, aged 71, of myocardial infarction

Robbins, Clarence Edward ⊕ Pierre, S D; Harvard Medical School, Boston, 1923; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; past president of the South Dakota State Medical Association; on the staff of St Mary's Hospital, where he died May 27, aged 56, of hypertensive cardiovascular disease with decompensation

Roberts, Austin Clay, Loveland, Ohio; Starling Medical College, Columbus, 1890; died April 2, aged 93

Robinson, Cornelius Byron ⊕ Marion, Ala; Louisville (Ky) Medical College, 1892; died April 25, aged 84, of myocarditis

Robinson, Roy Forrest ⊕ Madisonville, Ky; Louisville (Ky) Medical College, 1906; for many years member of the school board; on the staff of the Madisonville Hospital; died April 1, aged 71, of coronary thrombosis

Rosenthal, Gerhard ⊕ Blasdell, N Y; Albert-Ludwigs-Universitat Medizinische Fakultat, Freiburg, Baden, Germany, 1927; member of the American Academy of General Practice; died April 6, aged 53, of cerebral vascular accident and chronic glomerulonephritis

Rowe, Walter Gilley ⊕ Concord, N H; Dartmouth Medical School, Hanover, 1899; formerly city health officer; died May 14, aged 83

Schumacher, Nicholas William ⊕ Hettinger, N D; Minneapolis College of Physicians and Surgeons, 1911; died in Los Angeles March 22, aged 77, of coronary thrombosis

FOREIGN LETTERS

FINLAND

Thrombosis and Its Sequelae.—With a view to appraising the socioeconomic effect of post-thrombotic sequelae, a survey was made by Dr. Harry Zilliacus of the University of Helsinki. In a series of 680 patients (541 women and 139 men) who had previously had an acute thrombosis or a pulmonary embolus, only 48 (7%) had a completely normal leg. Pain and a feeling of heaviness were present in about 90%, chronic discoloration, induration, and eczema in 50 to 60%, and ulcers or other complications in 20%. Subsequent social and economic effect was carefully studied in 510 patients, of whom 78 had one or several relapses, 133 required an additional household assistant, 80 had to change their profession or occupation, and 54 were totally incapacitated.

Causes of Goiter.—Jarvinen and Leikola reported a series of 952 patients with nontoxic goiter (*Annales medicinae internae fenniae,* volume 45, part 1, 1956). The incidence of simple goiter in women was twice that in men. The patients' occupation or standard of living was not found to play any part. No difference from the control group was noted in the incidence of numerous diseases except that neuroses were more frequent in the patients with goiter. Chronic valvular diseases of the heart were less prevalent in those with goiter. The possible influence of pregnancies was not determined with certainty. The number of full-term pregnancies was lower in those with simple goiter than among the controls. In the group with simple goiter, both men and women were taller on the average than the controls and those who were overly tall were more numerous. In the winter the iodine content of main water was determined to be 0 mcg. per liter and in the summer 46 mcg. per liter. The investigations did not corroborate the assumption that a lack of iodine was the decisive causal factor responsible for simple goiter in Helsinki. Certain factors usually induce a slight increase in thyroid secretion without producing a goitrous enlargement of the thyroid. The work suggested that, as these factors do produce goiter in Helsinki, the population there is predisposed to formation of goiter. The cold climate of Helsinki appeared to be one predisposing factor.

FRANCE

Cerebral Hemispherectomy.—D. Ferey in the Jan. 18 issue of *La presse medicale* reported a series of 10 cerebral hemispherectomies for hemiplegia and encephalopathy in infants. It is hard to decide when such an operation should be performed. The main point is to have a healthy cerebral lobe. If the lobe to remain shows small atrophic lesions that can be identified by pneumoencephalography, it is not advisable to operate. A complete hemispherectomy improved eight patients in this series. This procedure is especially successful for the treatment of infantile hemiplegia and mental retardation of hemiplegics. In the successful cases the epileptic seizures disappeared and the children's behavior improved.

Spiramycin in the Treatment of Pneumonia.—Soulage and his co-workers in the Jan. 21 issue of *La presse medicale* reported that small doses of spiramycin given by mouth controlled the fever and symptoms in patients with pneumonia more rapidly than did penicillin. Although North Africans are very sensitive to the pneumococcus, the treatment was usually successful. No intolerance or intestinal troubles were observed. The dose used ranged from 1.5 to 3 gm. per day for 5 to 10 days.

Ion Exchange, Vascular Tonus, and Cell Metabolism.—Laborit and Huguenard (*Presse méd.* 64:605, 1956) reported that the variations observed in the ion found in serum and excreta give clues to the functioning of the cell. They found that polarization of the cell membrane depends chiefly on the ratio of intracellular to extracellular potassium ions. Polarizing agents (neuroplegic agents, insulin and glucose, and hyperventilation) increase intracellular and depolarizing agents increase extracellular potassium. Gross bleeding is depolarizing, but control of the hemorrhage and hemodilution result in polarization. An increase in extracellular sodium favors depolarization, and so does hypothermia. Effective cell metabolism depends on a correct polarization. This is maintained by shifts in extracellular and intracellular potassium and sodium. General resuscitation involves both sides of the cell membrane and avoids increasing of the extracellular concentration of sodium. To this end therapeutic bleeding may be of some value.

Manifestations of Porphyria.—Mazingarbe and his co-workers (*Presse méd.* 64:627, 1956) stated that porphyria, particularly in its intermittent acute variety, may simulate an acute or subacute surgical affection. In the authors' series of 18 patients with intermittent acute porphyria and abdominal signs for which an operation was considered, explorative laparotomy was performed on 12. In the remaining six patients, a correct diagnosis prevented a needless operation. In this series the commonest misleading syndrome suggested intestinal obstruction, a pseudopancreatic and a pseudoappendicitic syndrome were also observed. Operation should be avoided, as it often accelerates the disease process and may cause a severe infection owing to the extreme susceptibility of these patients to common pathogens. The diagnosis of pseudosurgical manifestations of porphyria is often difficult, especially in acute cases. The possibility of this condition should be borne in mind in the event of any abdominal syndrome in which the clinical, hematological, and radiological features are inconsistent or ill-defined. The diagnosis should be suspected from the history of previous similar attacks having spontaneously cleared up, the symptomatic grouping, and the presence of associated signs.

Permeability of Meninges to Isoniazid.—Janbon and his co-workers reported to the Society of Medical and Biological Sciences of Montpellier on Jan. 6 that assays made in 15 patients with healthy or pathological meninges proved that isoniazid acts like a small molecular substance and penetrates the blood-brain barrier. In one patient with tuberculous meningitis who was given isoniazid only by mouth (in doses totaling 600 mg. per day), the spinal level rose progressively, from 4.45 to 7 mcg. per cubic centimeter. In another patient, whose initial level was only 1.36 mcg. per cubic centimeter and who was given the same amount of the drug by mouth, it was necessary, because of a delay in clinical improvement, to add spinal injections. These proved rapidly effective, and the spinal level subsequently remained high despite a decrease in the spinal injections. These observations indicate that permeability of the meninges to isoniazid increased during the course of treated meningitis and that in certain patients intrathecal injections may be necessary at first in order to assure the therapeutic result.

Anaerobic Corynebacteria in the Blood and Various Organs.—Janbon and his co-workers, at a meeting of the Society of Medical and Biological Sciences of Montpellier on Jan. 20, reported that more than a year after accidental discovery of a bacteremia due to anaerobic corynebacteria in a patient, an acute leukemia developed. This caused them to look for anaerobic corynebacteria in the blood, marrow, lymph nodes, and other organs in a series of 30 patients. Of these, 6 patients with Hodgkin's disease, 7 with leukemia, and 5 with reticuloses, malignant sarcomatoses, and various other conditions, or 18 patients in all, yielded one or more cultures of various anaerobic corynebacteria (C. anaerobium, C. parvum, and C. liquefaciens). The authors believe that the passage into the circulation of these organisms is proof of disease characterized by disordered participation of the reticuloendothelial system

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The items in these letters are contributed by regular correspondents in the various foreign countries.

Convulsions in Mongoloids.—Contrary to the findings of the Spanish pediatrician L. F. Camarasa, who observed convulsions in only 1.6% of Mongoloid children, Schachter (*Journal de medecine de Paris*, March 1956) observed convulsions in 7.6% of his series of 158 Mongoloid children. In these children he found prematurity as a predisposing factor in 37.3%. The author believes that the published figures do not present a true picture because many parents no longer remember whether the child suffered convulsions or not and small convulsions often go unrecognized. For this reason the problem of convulsions in the antecedents of mental deficiency ought to be more closely studied.

Placenta Accreta.—In *Gynecologie et obstetrique* (vol. 154, no. 3, page 345), Gabriel and Ambre reported three cases of placenta accreta, a condition that occurred once in an average of 15,000 deliveries. This condition may be caused by (1) a congenital anomaly, malformation, or hypoplasia of the endometrium, (2) the gynecologic or obstetric accidents preceding the pregnancy, or (3) low implantation of the ovum. In 90% of cases, the patient is a multipara. In 20% of these patients severe hemorrhages attended the delivery, often necessitating hysterectomy. The fetal mortality is high and some malformations are likely to be present in the infant.

Prednisone for Multiple Sclerosis.—At a meeting of the Medical Society of Paris Hospitals in March, R. Claisse and his co-workers reported a series of 56 patients with multiple sclerosis who had been under treatment for about nine years. After taking prednisone for three months 23 of the patients were sufficiently improved that active reeducation was possible, 28 were not improved, and in 5 this treatment was stopped because of such complications as glycosuria, hypertension, or lighting up of some pulmonary lesions. The daily dose did not exceed 20 mg. Of the 23 who were benefited, the phonation disorders in 4, the deglutition disorders in 3, and the sphincteral disorders in 7 were improved.

ISRAEL

Incidence of Diabetes Among Jews.—The opinion that diabetes is much more frequent among Jews than among other peoples is found in most medical textbooks. Because the basis for this opinion appeared to be unreliable, Hermann Steinitz (*Harefuah* 50:107, 1956) conducted a new survey in the spring of 1955 based on the data of the food rationing authorities. It can be assumed that nearly every diabetic claimed his extra ration of food sold at minimal cost. Among 817 000 persons, a little less than half the country's population, in the three main cities (Jerusalem, Tel Aviv–Jaffa, and Haifa) and in two smaller towns (Petach-Tikvah and Rehovoth), 9 050 diabetics, a rate of 1.1%, were registered. The highest incidence (1.53%) was found in Tel-Aviv–Jaffa and the lowest (0.45%) in Rehovoth. It is true that these figures do not include all the diabetics in the country but represent only the known diabetics. In Israel, however, about 75% of the population is insured in various health insurance schemes, and there is no doubt that advantage is taken of the opportunity for frequent examination. Therefore few diabetics evade detection for long. It may be objected that due to immigration Israel has a high percentage of young people with a low diabetes rate, but the present material is composed mostly of the urban population and not the rural part of the country with its greater concentration of young people. The estimated rate is similar to that of many other civilized countries in which diabetics constitute between 1.5 and 2% of the total population. On the basis of this survey, it can be concluded that diabetes is not particularly prevalent among Jews in Israel. Where higher figures among Jews were found, other contributory factors, such as higher rate of detection due to better medical care, intermarriage of diabetics, a sedentary way of life, and a high incidence of obesity, cholelithiasis, and other diseases favoring the development of diabetes may be responsible.

Bronchial Asthma.—At a meeting of the Association for Allergy and Internal Medicine in Jerusalem, I. M. Gutmann stressed the influences of environment in causing asthma. He had especially observed a group of immigrants from Iraq who in their home country had been free from asthma. Soon after they settled in Israel they showed typical signs of asthma. The immigration of Iraqi Jews in 1951 and 1952 numbered about 124 000. Of these about 90,000 came from Baghdad where they were relatively well off. The climate in Baghdad is hot and dry in summer and cold and dry in winter. Most of the immigrants who settled down at Ramat-Gan, a town near the sea, shortly after their arrival in Israel showed typical symptoms of bronchial asthma. Most patients belong to the age group 20-40. In contrast to the occurrence of allergic symptoms in this age group in the whole population, the percentage in the Iraqi group living at Ramat-Gan was 50. The main causes of the asthma were bacterial allergens and fungi. Practically none showed an allergy to pollen of foods. The climate at Ramat-Gan and environs is different from that of Baghdad, in summer the relative humidity is higher. The question arises, however, why other immigrants from Iraq, for instance those living in the Tiberias or Beersheba area, do not suffer from asthma. It is suggested that a sensitization by the existing pollen probably occurs and that a psychosociologic cause may be important, in that only a small number of these immigrants are able to maintain their former standard of living. Although not poor, they are faced with the difficulties of adapting themselves to the new environment. In recent years the frequency of asthma in this group has been diminishing. This is due not only to therapy but also (and perhaps more important) to the fact that adjustment to the new life has been successful. In another group, patients who formerly had been inmates of concentration camps are being treated. Almost all people of this group had one thing in common: before their incarceration they had been chronic asthmatics. In spite of the changed living conditions they had lost their asthma while confined. In some a recurrence of the asthma was observed after release from concentration camp.

Dermatoendocrinological Syndrome Due to Diethylstilbestrol.—I. Katzenellenbogen reported in *Harefuah* (50:241, 1956) on a dermatoendocrinological syndrome connected with the production and use of diethylstilbestrol. The method of caponizing cockerels by implants of the hormone has gained great popularity in Israel and hence the production of diethylstilbestrol has increased. The dangers of absorbing even small amounts of the drug by ingestion, inhalation, and percutaneously were not realized until recently. Since February, 1956, 13 adults (11 men) engaged in the manufacture or handling of pellets and tablets of the drug and 7 children were found to be affected. The clinical symptoms in the men included tingling in the nipples, tenderness in the breast, development of nodules, often unilateral, under the nipple area, later gynecomastia and decreased libido, and finally impotence. The first symptoms usually started a few days after the worker was engaged. Two to three months after he had stopped working, all signs disappeared. All affected workers had been handling the drug for only a short time except two who had worked in its production for over a year. In addition to the symptoms mentioned, they showed dotted or striped, knotted pigmentation in the nipple area. One also had an atrophic testis. While no pigmentation was found in the other adults, all the children affected had dark pigmentation in the navel and the nipples. In the boys the skin of the scrotum and half of the penis was darkly pigmented. In three children an acanthosis-like syndrome was observed. The increased pigmentation was restricted to parts physiologically prone to pigmentation, including pigmented moles, but entirely absent from the face. Pseudopubertas praecox with a marked increase in size of the breast and menstruation was noted in two sisters, one 10 and the other 4 years old. It is suggested that the striking pigmentation in children might serve as an indication of the absorption of even minimal amounts of diethylstilbestrol. This would contribute toward solving the riddle of whether remnants of the drug continue to contaminate the poultry. A special commission has been appointed to study the dangers involved in the use of diethylstilbestrol These dangers affect workers in factories producing the pellets, farm hands using them, and the public consuming the fowl castrated by this means

ITALY

Genital Tuberculosis in Women —Prof Francesco Vozza stated that the diagnosis of genital tuberculosis in women is often made only at operation or autopsy (*Annali Ravasini*, no 6, April 15, 1956) Genital tuberculosis associated with tuberculous lesions in other organs is more frequent than the so-called isolated form, in which the disease is limited to the genital organs Pregnancy is rare in women with genital tuberculosis but may occur in those whose disease is cured by use of antibiotics The clinical manifestations of genital tuberculosis are protean It may be asymptomatic, and the patient may consult her physician for amenorrhea or for sterility, the cause of which she does not know On the other hand, the onset may be sudden, with symptoms suggestive of a severe pelvic peritonitis or appendicitis If tuberculosis is suspected, tubercle bacilli should be looked for in the menstrual blood or the cervical secretions Celioscopy is not advisable Hysterosalpingography should be performed with extreme caution The treatment should be medical, except in selected afebrile patients in whom the disease is stabilized and localized in the genital organs

Cardiac Surgery —At a meeting of the Societa Medico-Chirurgica of Bari in March, Professor DeBlasi reported a series of 48 patients with cardiac disease on whom he had operated Ten patients with constrictive pericarditis underwent extensive decortication and 28 with mitral stenosis, commissurotomy The speaker stressed the necessity for generalized antirheumatic treatment preoperatively and the use of the valvulotome in order to prevent trauma to the valve in case it cannot be easily opened with the finger The remaining five patients had pure pulmonary stenosis and tetralogy of Fallot They underwent transventricular valvotomy and pulmonary subclavian anastomosis of the Blalock type There were no deaths in this series The functional results were satisfactory in some patients even four years after the operation

NEW ZEALAND

Production of Renin —McQueen has reported (*Proc Univ Otago M School* 34 3, 1956) the results of experiments on vascular reactivity in experimental renal hypertension in the rat In a series of experiments one kidney was removed, and a week later the artery of the remaining kidney was partially occluded After this procedure the rats drank 1 5% sodium chloride solution In a second series, a clip was applied to the renal artery, the other kidney remaining intact Vascular reactivity, assessed in all cases by means of the perfused rat hindquarter preparation, was increased in both groups The increased reactivity is clearly not due to diminution in functioning renal tissue and must be presumed to result from the effect of a substance released from the ischemic kidney This interpretation seems to revive the debated question of the production of renin by the kidney

Adaptation to Cold —Hornabrook and Purves have shown (*Proc Univ Otago M School* 34 6, 1956) that replacement therapy with either L-thyroxin (1 25 mcg daily) or cortisone acetate (1 25 mg daily) improves resistance to cold in hypophysectomized rats Thyroxin has proved to be more effective than cortisone Both hormones in combination restore hypophysectomized rats to normal, with rats being able to resist continuous exposure to a temperature of 4 C for 10 days The authors concluded that, from the effectiveness of replacement therapy with cortisone and thyroxin, thyrotropin and corticotropin are the only pituitary factors involved in the adaptation of rats to cold These findings may be of great interest in connection with the New Zealand expedition to Antarctica planned for next year

Antidiuretic Effect of Serotonin —Waal and Veale (*Proc Univ Otago M School* 34 12, 1956) have assessed the antidiuretic effect of serotonin in mice The amount of urine collected in groups of four mice after two hours, expressed as a percent of the water given, was 61% for the controls but only 34% for the mice that had been given 0 5 mg per kilogram of body weight of serotonin A 5-mg per kilogram dose of serotonin had a more marked effect Similar effects were observed with 0 5 unit per kilogram of body weight of posterior pituitary injection, but, whereas the chloride concentration in the urine of the mice treated with serotonin was significantly lower than that for the controls, that of the mice treated with posterior pituitary injection was significantly higher This result indicates that the modes of action of the two drugs are different The antidiuretic effect of serotonin could be the result of diminished blood flow through the kidney

Large Babies —A 15-lb (6,804 gm) baby is always news, since most physicians never see one of this size, and the event is still more remarkable when the same mother delivers herself of a 13½-lb (6,123 gm) baby the following year Dr H P Dunn (*New Zealand M J* 55 141, 1956) reported that the babies' mother was a 20-year-old woman experiencing her fourth and fifth pregnancies She was of massive build and weighed 227 lb (103 kg) when not pregnant and was 5 ft 7 in (170 18 cm) in height The first baby, a boy 27 in (68 58 cm) long, weighed 15 lb Although the head was delivered easily, there was great difficulty with the shoulders, but delivery was accomplished without laceration of the perineum Eighteen months later the patient reported with a new pregnancy She had an easy spontaneous delivery of a boy weighing 13½ lb A glucose tolerance test confirmed the suspicion of prediabetes in the mother, but no sugar was detectable in the urine at any time The association of large babies and maternal diabetes, or prediabetes, is well recognized The probable explanation of the mechanism is that the growth hormone is identical with the diabetogenic hormone, and in immature animals it causes growth but when injected into mature animals it causes diabetes

Vanishing Tuberculosis —An important addition to the 1954 decisions of the Otago Hospital board that the Pleasant Valley Sanatorium was no longer needed and of the Health Department that the construction of a new 140-bed sanatorium should be abandoned is the announcement by the government in June that it intends to close the Pukeora institution near Waipukarau The Minister of Health pointed out that the closing of this institution would save the country about $700,000 for improvements, exclusive of maintenance costs The most heartening development, however, is represented not so much in money saved as in the progress made in checking tuberculosis and in the rehabilitation of the ill The tendency now is to concentrate accommodation as much as possible on general hospitals in expectation of the time when tuberculosis will be no longer a problem of magnitude The new system of classing the trouble as just another type of infection and not segregating patients behind a barrier, as it were, has the advantages that patients will be treated by the most modern methods and nearer their homes and therefore in closer touch with relatives and friends, whose regular visits are likely to contribute to the cure There will be general approval, moreover, of the government's decision to increase the social security benefit for patients with tuberculosis This is another step in the campaign which should help to overcome reluctance to undergo x-ray examination lest it should indicate the presence of the disease and create the threat of reduced earning power

Lumbago —Dr G C Jennings (*New Zealand M J* 54 691, 1955) stated that in most sports activities (like horseback riding) the spine is extended and the lumbar curve maintained In a motor car, however, it is easy to sit with the lumbar curve flattened or reversed Even with the best of roads and modern low-pressure tires, a certain amount of up-and-down movement occurs in traveling This is something relatively new in demands on the lumbar spine In patients under anesthesia, especially with modern relaxants, it is also hazardous to flex the lumbar spine Dr Jennings has emphasized that in a car the habit of correct posture should be encouraged as a prophylactic measure and sometimes a special cushion should be used He has designed a sponge rubber lumbar cushion to be attached to the back of the driver s seat

Safety Belts for Drivers—Dr C Milsom (*New Zealand M J* 54 719 1955) reported that in several motor accidents the front-seat passenger has sustained gross injury despite a relatively minor impact In most of these cases the driver, supported by the steering wheel and having warning of the impact escaped with surprisingly little injury Dr Milsom advocates the use of a safety belt that is cheaply manufactured, easy to fit, and in no way restricts the movement of the wearer Using the body weight of its wearer and no buckles it is surprisingly easy to don and cannot trap the wearer The belt is a long strap about 2 in wide secured at one end to the floor behind the front seat It is worn by passing it up over the top of the front seat, over the right shoulder of the passenger, and then diagonally down across the chest and abdomen, and finally it is tucked under the left thigh If a sudden deceleration occurs, the weight of the passenger allows the belt to pay out about the passenger in the same manner as a line to a boat pays out around a bollard The belt therefore allows the passenger to rise forward without bringing him to such an abrupt stop that the head may whip forward Dr Milsom warns those careful drivers who think they do not drive fast enough to need safety belts that, in his experience the genuinely careful driver is just as frequently injured as is the negligent one

PERU

American Trypanosomiasis—In *Revista de Medicina Experimental* (volume 9, 1952-1955) Dr Aristides Herrer reports that Triatoma infestans is the only vector of American trypanosomiasis in southwestern Peru Its present distribution is along the western slope of the Andes from the 14th to the 18th parallel of south latitude and from sea level to about 3 500 m (11 482 ft) of altitude In most of the investigated places, T infestans was found to be infected with Trypanosoma cruzi the rates of infection varying according to the domestic animals on which the insect feeds Locations where guinea pigs are raised presented the highest incidence of infection Searching for natural infections, blood smears from 356 animals, including 297 guinea pigs, 14 rabbits, 8 cats, and 5 pigs, were examined, and 17 guinea pigs and one cat were found to be infected The guinea pig is one of the main hosts of T infestans and, because of the frequent transportation of guinea pigs from one location to another, it is assumed that this rodent constitutes an active means of disseminating the parasites The antimalarial application of chlorophenothane (DDT) by the Ministry of Public Health and Social Welfare, between 1948 and 1951, had as a side-effect a significant reduction of Triatoma infestation and hence of the incidence of trypanosomiasis Unfortunately these gratifying results are not likely to endure, because the antimalarial campaign has been interrupted Entomologic studies in the basin of the Marañón River, between 450 m (1,476 ft.) and 2 700 m (8,864 ft) above sea level, have proved the Panstrongylus herreri to be the vector of the T cruzi

TURKEY

Hyperimmune Antirabic Serum—In the *Turkish Bulletin of Hygiene and Experimental Biology* (15 307, 1955), Berke and Türkay reported on their use of hyperimmune antirabic serum administered alone and prior to vaccination Until January, 1955, antirabic hyperimmune serum combined with the Högyes treatment was used In 1953, 3 of 44 patients who had received severe bites from rabid animals and who were given this treatment died Using a new method the authors had no deaths during or at the end of the treatment among the patients with severe bites from animals with rabies confirmed by laboratory examination Hyperimmune antirabic serum was given subcutaneously or intramuscularly close to the wound prior to vaccination with Semple or Hogyes type of vaccine As free virus is found in the infected area for up to 72 hours, the serum, if given within this period, neutralizes the virus, decreases absorption into nervous tissue, and prolongs the incubation period The serum used for this purpose should be high in neutralizing potency, concentrated, and purified Hyperimmune serum should be given when persons with severe bites from animals suspected or confirmed to be rabid have wounds close to or involving the head and when not more than 72 hours have elapsed after the wound was incurred The wound should immediately be disinfected, and part of the hyperimmune serum should be injected by infiltration close to the wound, the rest of the dose being given subcutaneously or intramuscularly This should be repeated twice daily, using a total dose of 0 5 cc of hyperimmune antirabic serum per kilogram of body weight for two days This is followed by the Semple type of vaccine, using a daily dose of 4 cc for adults and 2 cc for children under 5 years of age If a patient applies for prophylactic therapy 72 hours after the wound was incurred the Semple vaccine only should be given, the period of treatment being 24 days In such cases a daily dose of 6 cc for adults and 3 cc for children under 5 years of age is used Precautions should be taken to prevent anaphylactic reactions

Thallium Poisoning—In the same bulletin (15 299, 1955) Dr Sükru Kaymakçalan reviewed the toxic effects of thallium and other rodenticides and reported on his investigation concerning thallium poisoning in seven persons, resulting in the death of two, a child aged 5 years and a child aged 2 Because bread was suspected as the cause flour from a town in southern Anatolia was analyzed Biological and chemical tests revealed the presence of thallium Presumably a thallium-containing rodenticide had been ground with the flour through carelessness As a result, the Ministry of Health and Social Assistance restricted the sale and application of all kinds of rodenticides There was partial unconsciousness, loss of orientation, memory, and vision tremor of the hands, nausea constipation and loss of appetite with revulsion to the odor of fat. There was severe pain in the legs with resultant inability to walk and loss of hair, nails, and the skin of the feet At the hospital the cause of these conditions was not discovered When the patients went home and the same symptoms reappeared, the bread was suspected especially since the two families procured their flour from the same source Although one of the female patients was six months pregnant, no abortion occurred

UNITED KINGDOM

Nystagmus in Alcoholic Intoxication—The high incidence of nystagmus reported in drunken motorists suggests that it might be used as a physical sign in medicolegal cases in which alcoholic intoxication is alleged Dr D E Howells confirmed the presence of nystagmus in volunteers given ethyl alcohol and determined the amount needed to produce this sign (*Brit M J* 1 1405, 1956) Reaction time was determined before the alcohol was taken and at least two and one-half hours after the last meal had been eaten The alcohol was diluted with an equal volume of lime juice and water and consumed within 10 minutes Reaction time was determined for response to a visual stimulus from a neon light or to an auditory stimulus from a loud-speaker, the reaction being automatically recorded by an electrical system worked by extension of the flexed finger In all subjects tested, the appearance of nystagmus was accompanied by an increase in reaction time The increase at the onset of this physical sign varied from 4 3 to 35 9% The appearance of nystagmus after ingestion of alcohol suggests that a subject of average weight has received a minimum of 50 ml of absolute alcohol or its equivalent. The consumption of this amount is sufficient to impair the judgment of a motorist The increase in reaction time is an indication of impaired functioning of the central nervous system The fact that no other ocular sign was found indicates that nystagmus is the earliest ocular sign produced by alcohol and does not depend on any abnormality of the pupil size or reaction

Rostral Lobotomy—It has long been recognized that the effects of a standard prefrontal lobotomy in the plane of the coronal suture can be very damaging to the personality of the patient Modifications of this operation have been devised that are therapeutic without inflicting grievous damage on the intellect and personality Dr J Pippard (*Brit M J* 1 1402, 1956) has investigated the long-term results of McKissock's modified operation, rostral lobotomy, in 240 patients who were followed up for periods ranging from one and one-half to five years after the operation Only 210 of the 240 were interviewed, 13 having died and 17 being untraceable Nearly half the patients were psychoneurotic or psychopathic, and a third suffered from affective disorders, mostly depressions There was an operative mortality of 1%, a risk of lastingly serious personality damage as a result of cerebral hemorrhage in about the same percentage, and epilepsy in about 5%

In patients with uncomplicated affective disorders, such as recurrent endogenous depression, recurrent depression in which reactive factors were more important, and simple depression, the results were good in 60%, fair in 17%, and poor in 23% In the patients with psychoneuroses, including tension states, obsessional states, hypochondriasis, and psychopathic personality, the results were good in 39%, fair in 22%, and poor in 39% If the good and fair results are regarded as worthwhile, the results can be considered satisfactory in 75% of those with affective disorders, in 67% of the psychoneurotics, and in 40% of the psychopaths The price paid in these patients for these results in terms of personality degradation was compared with that in a comparable series operated on by the same surgeon, in which the standard operation of prefrontal lobotomy was used Undesirable changes occurred in only about 5% of patients undergoing rostral lobotomy, and these were attributed to poor selection of patients They occurred in about 50% of those undergoing the standard lobotomy There were insufficient data to show the effect of the new operation on intellectual efficiency and judgment, as only 6 of the 240 patients were originally in responsible positions As far as less exacting work was concerned, many patients returned to skilled occupations There were no data showing the effect of the operation on artistic ability Pippard believes that lobotomy, including the modified form, while it may have a useful and sometimes valuable place in the treatment of mental illness, is destructive and potentially harmful and should only be performed after careful consideration and selection of cases

Viadril—Galley and Rooms (*Lancet* 1 990, 1956) have used Viadril (21-hydroxypregnane-3,20-dione sodium hemisuccinate) as the basic anesthetic in a series of 100 operations of all types By trial and error it was found that 0 5% in an isotonic sodium chloride solution produced no venous thrombosis at whatever rate it was run in A drip rate of 150 per minute was found to be the most convenient, producing drowsiness in 5 to 7 minutes, light sleep in 10 minutes, and unconsciousness in 15 minutes After this time, pharyngeal reflexes are lost, in striking contrast to the effects of intravenous anesthetization with barbiturates or thiobarbiturates, so that direct laryngoscopy can be performed Endotracheal intubation was sometimes possible with Viadril alone, after which nitrous oxide and oxygen (5 2 mixture) was adequate to maintain anesthesia for relatively simple procedures More often, however, analgesics such as meperidine were added, as well as muscle relaxants It was found that meperidine, tubocurarine, and succinylcholine chloride were incompatible with Viadril, producing a flocculent precipitate They were therefore injected separately Other preparations used in anesthetic practice, such as thiopental sodium, thialbutone, gallamine triethiodide, atropine, neostigmine, nalorphine hydrochloride, and methamphetamine, were compatible

Viadril produced the same electroencephalographic changes as other intravenously given barbiturates, and in doses normally given did not appear greatly to affect either the depth or rate of respiration, however rapidly given When controlled respiration was attempted, respiration was more readily taken over than with barbiturate anesthesia One advantage of Viadril was the absence of laryngospasm when the vocal cords were stimulated and the absence of "bucking" under light anesthesia Falls in blood pressure and a rise in pulse rate were more frequent with Viadril than with barbiturate anesthesia With Viadril, however, the lowering of blood pressure often rectified itself, and in those patients in whom it did not, an intramuscular or intravenous injection of methamphetamine or a similar drug soon brought the blood pressure up to normal Viadril appears to replace thiopental in any anesthetic sequence, but it has the drawback of slow induction, which is the result of its administration by intravenous drip in dilute solution, necessary to avoid thrombosis Galley and Rooms were particularly impressed by the ideal operating conditions offered by Viadril and by the comfortable recovery period This was considered better than that offered by any other anesthetic or anesthetic combination in common use

Preservation of Fish—Most fish eaten in Great Britain are caught between the Faroe Islands and the Arctic Circle and are a long time reaching the consumer In spite of refrigeration, the taste is affected by the growth of bacteria on the scales The standard method of preservation is to cool the fish with ice or to pack it in salt Neither method prevents the growth of bacteria that cause spoilage The Torry Research Station at Aberdeen has carried out trials on the use of chlortetracycline on the preservation of fish The addition of 5 ppm of chlortetracycline to the salt in which the fish is packed in the trawling vessels improves the appearance, taste, and smell of the fish on landing, and may enable it to be kept for a week or more longer than usual This enables trawlers to go further afield and to return a bigger catch, but, as the British law stands, this is illegal, as antibiotics must not be used for food preservation There are strong arguments in favor of preserving fish in this way, and, if the trials are as successful as they appear to be at present, the law may be altered The same problem is present concerning the protection of beer against foreign yeasts and organisms that affect its flavor by the addition of traces of polymyxin The amount of chlortetracycline remaining in the fish after cooking is negligible, boiling destroys it, and frying leaves only a trace There is, however, little information on the results of continued ingestion of even traces of antibiotics The effect on animals, which are fattened by chlortetracycline, cannot be compared with long-term effects in man It has, however, been stated that pathogenic strains of Escherichia coli may appear in calves that have received chlortetracycline to supplement their food At present, research is directed to finding another antibiotic that is as effective as a preservative but that is more readily destroyed during the cooking of the fish

Mass Lightning Casualties—At the last Ascot race meeting a severe thunderstorm occurred while the meeting was in progress A flash of lightning struck a tea stall and ran along the railings of one of the race stands Many people were thrown to the ground, and one woman was electrocuted Medical services were quickly organized, and 46 injured or shocked people were removed to hospitals A report on 37 of the patients who were detained has been published by Arden and his co-workers (*Brit M J* 1 1450, 1956) Twelve patients were rendered unconscious for some time, and two of these eventually died from head injuries Several had retrograde amnesia for the event, while others remembered seeing the flash, and a few described a sensation of being struck at the back of the neck The majority on regaining consciousness were unable to rise from the ground Of the 37 patients, 26 complained of paresthesias, shooting pains down the limbs at the time of the accident, and a subsequent weakness of the limbs associated with tingling In the early stages, examination revealed diminished reflexes, hypalgesia, and muscular weakness Some symptoms persisted for several weeks Most of the symptoms subsequently cleared, although in a few patients diminished hearing and emotional disturbances persisted In no case was extensive necrosis present beneath the skin as is often seen with electrical burns Fifteen patients received burns, only three of which were severe The flash burns were characteristic, appearing as a brown discoloration of the skin involving only the surface layers One patient had burns on the soles of the feet and no other injuries Punctate full-thickness skin loss was the most common finding The stands were protected by lightning conductors, and there were no injuries there The site where most of the injured were standing was a metal-topped tent, in which were a number of people with rain-soaked clothes

CORRESPONDENCE

CLOTTING VERSUS PROTHROMBIN TIME

To the Editor —The thesis of the paper of G A. Mayer and W F Connell (*J A M A* 161 806 [June 30] 1956) that the clotting time is a more valuable guide to Dicumarol therapy than the Quick one-stage prothrombin time test is fraught with such danger that I deem it an obligation to submit this communication The idea of substituting the clotting time for the prothrombin time is not new Cheney in 1940 (*Am J M Sc* 200 327) proposed the plasma clotting time to estimate hypoprothrombinemia and a careful survey of the literature might disclose other attempts, but, significantly, anticoagulant therapy continues to be controlled by the one-stage method in nearly all the hospitals of the world, presumably with success

It might be well to recall that the clotting time was available long before the prothrombin time Many of the older surgeons will remember how many patients with obstructive jaundice bled postoperatively, sometimes fatally, even though the laboratory had assured them that the clotting time was normal It was not until Stanley-Brown, Bancroft, and I (*Am J M Sc* 190 501 1935) applied the one-stage method to the study of these patients and I suggested that the condition be treated by giving bile salts and vitamin K (*Am J Physiol* 118 260, 1937) that the enigma of cholemic bleeding ceased to be a problem and became only of historic interest It is not surprising that several European students of coagulation have hailed the introduction of the one-stage method as the opening of "a new era in blood coagulation research " I mention this merely to emphasize how important it has been to free coagulation research from the dominance of the clotting time

Of all the routine tests of hemostasis, the clotting time is among the most unreliable for establishing a bleeding state, even when meticulously standardized The clotting time is normal or even decreased in thrombocytopenia in spite of the fact that coagulation as measured by the prothrombin consumption test is exceedingly defective It is also normal in mild hemophilia, in hemophilia-like diseases and in stable-factor deficiency in all of which conditions there is a frank bleeding tendency Furthermore, the clotting time in normal individuals varies between 5 and 10 minutes when the blood is collected in a silicone-coated syringe with faultless technique It might be added facetiously that, when one observes how venipunctures are done in many hospitals, one may abandon without hesitation standard deviations and coefficients of variation I know of few hospital tests that contribute less to the safety of the patient than does the clotting time Only two days ago I saw a hemophilic boy who had a tooth extraction without a prophylactic fresh plasma transfusion because his clotting time was found to be normal prior to extraction As a result, he bled for four days and required eight transfusions Since the clotting time in certain instances is not even a good screening test, there is little excuse for retaining it as a routine procedure When a bleeding state is suspected chief reliance should be placed on the prothrombin time the prothrombin consumption time and the bleeding time

If the Quick one-stage prothrombin time test is to be compared with the clotting time or any other test, it should be carried out as I have described it and a value of 12 seconds for normal plasma should be obtained Doctors Mayer and Connell report a range from 13 to 16 seconds Unfortunately, they fail to specify what kind of thromboplastin they employ The shortcomings that they attribute to my test may prove perhaps to lie in their technique I hope therefore that their statement, "We have shown that, if the clotting time is within adequate limits, excessively prolonged prothrombin times may safely be disregarded," will be critically considered by investigators who have had extensive experience with Dicumarol therapy

My associates and I have had the opportunity to study a large variety of hypoprothrombinemic states, and we have found an excellent agreement between the prothrombin time and the bleeding tendency on the basis of both experimental work and clinical observation. In congenital true hypoprothrombinemia this relationship is particularly striking It might further be added that an infant with a prothrombin time of 12 seconds can undergo major surgery with impunity, even though the prothrombin concentration as measured by the two-stage method may be only 25% The reason for this is that the unmodified one-stage method (with acetone-dehydrated rabbit brain thromboplastin) measures the free prothrombin, which neither the two-stage nor any other prothrombin method determines

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P S Drs Mayer and Connell have kindly sent me a copy of their letter in reply to the above communication Contrary to their statement, I am familiar with Dr Mayer s modified clotting time We have not used his method, but the procedure we employ is as meticulously controlled The remarks I made apply to all clotting time tests

To the Editor —Dr Armand J Quick has kindly sent us a transcript of his comments on our recent article Effect of Bishydroxycoumarin (Dicumarol) on Clotting Time of Whole Blood" (*J A M A* 161 806 [June 30] 1956) We fully agree that the commonly used clotting time techniques have no place in the control of Dicumarol therapy In our study we used a new method, which is highly reproducible and is devoid of the common sources of error inherent in previous tests Unfortunately, Dr Quick is unacquainted with our method, and his comments are directed at techniques of notorious inaccuracy Since we completed our Dicumarol study, we have continued our work We have now observed 310 patients including 46 on long-term anticoagulant therapy under treatment with Sintrom, Tromexan, and Indon (phenindione), as well as with Dicumarol, for a total of 13,500 treatment-days Our therapy was directed entirely by our clotting time technique, the Quick test being performed also for comparison in the first 240 cases Clinical results have been excellent there have been no hemorrhagic accidents or thromboembolic complications while clotting time was within our therapeutic range The discrepancy between our test and the Quick one-stage test as performed in our laboratories has been even more pronounced than in the Dicumarol series In our patients on short-term therapy, we obtained on 250 treatment-days prothrombin readings of under 10% (from 70 to 90 seconds) These readings were nearly all obtained during the first 10 days of therapy, while the clotting time was only slightly elevated Some of our patients trea ed with Sintrom showed such prolonged prothrombin times for from four to six consecutive days during this early phase of treatment (always associated with only slight clotting time prolongation) During this period, not a single hemorrhagic complication occurred

It is difficult to overstate the importance of Dr Quick s one-stage test in the field of coagulation research It paved the way for many important discoveries in the field of the hemorrhagic syndromes and of liver disease and it certainly has made possible the widespread clinical use of the orally given anticoagulants However it would not be correct to agree that "anticoagulant therapy continues to be controlled by the one-stage method in nearly all the hospitals of the world " Certainly, in many large European hospitals it is no longer the sole test used Dr Nelson W Barker, speaking at the Conference on Thrombosis and Embolism in Basel Switzerland in 1954 (Thrombosis and Embolism Proceedings of the First International Conference, Basel 1954 edited by Th Koller and W R Merz, Basel, Switzerland Benno Schwabe & Co., 1955, p 685) summarized the position for many "It is not certain that this test is an accurate index of either the antithrombotic or potential hemorrhagic effect of the coumarin and indanedione compounds, in fact there is reason to believe that it may not always be so " Our own clinical studies, and a statistical analysis of our data, both published and unpublished, have convinced us that our standardized clotting time is more reliable in this regard than is the Quick one-stage test Our thesis is that, if an anticoagulant drug is actively inhibiting intravascular clotting, this effect will best be reflected by changes in the clotting tendency of whole unmodified blood in vitro and not by measuring the changes in one stage of the process.

That the one-stage prothrombin test is a valuable screening procedure in many hemorrhagic diseases goes without saying. We fully agree with Dr. Quick that ordinary clotting time methods should be abandoned for such purposes, since they are so inaccurate as to be completely misleading. However, this criticism does not apply to our technique. In studies on patients with potential bleeding tendencies, we have noted abnormal standardized clotting times in five patients. In these, more elaborate investigations demonstrated a deficiency in one or more clotting factors. One patient showed a prolonged clotting time after an apparently mild abdominal contusion; further study revealed extensive liver damage. Our test, then, is one of the procedures we now routinely use in the screening of patients with hemorrhagic disorders.

In the performance of the one-stage test, our laboratory employs fresh Difco-Bacto thromboplastin daily. We were aware of Dr. Quick's statement that the normal control should clot at 12 seconds. With the most meticulous care, we could not obtain this result. Our experience would seem to be that of most workers in this field. Our experience with the one-stage test is not of course as extensive as is Dr. Quick's. Nevertheless, one of us (W. F. C.) has used Dicumarol clinically for 10 years and the other (G. A. M.), for 9 years. Now that we have had over three years' experience with our new test, we would be loathe to control therapy with orally given anticoagulants with the one-stage prothrombin test alone. We are very glad that Dr. Quick has emphasized the complete uselessness and indeed the danger of relying on the conventional clotting time tests in the control of anticoagulant therapy. We do feel, however, that the procedure we are using is of high accuracy and of great value. We would be most grateful if other investigators might see fit to submit this procedure to a controlled study.

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FOOD PUMP

To the Editor:—The idea expressed by the authors in the article entitled "Food Pump: New Approach to Tube Feeding," by Barron, Prendergast, and Jocz, which appeared in The Journal, June 16, 1956, page 621, is not new. The authors have overlooked a previous contribution on the same subject, entitled "Continuous Forced Feeding Pump, a New Approach to Nutritional Therapy" by C. C. Snyder, then of Galveston, Texas, now of Miami, Fla., published in *Plastic & Reconstructive Surgery* (8:73, 1951). As far as can be determined, these two pumps operate on about the same principle.

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IMPLANTATION OF HUMAN TUMOR MATERIAL INTO VOLUNTEERS

To the Editor:—Commenting editorially on the proposed project dealing with implantation of human tumor cells into volunteering convicts in an Ohio penitentiary, the New York *Times* called it "a daring experiment" in "a new approach to cancer," reassuring its readers that "the experiment is fraught with no great risk—if cancer is incited it can be eradicated in its early stages at the site of injection." This approach is far from being new. As long ago as 1887, Cornil in France transplanted human tumors into the patients from whom these tumors had been excised. Similar experiments, some of them unpublished, have been since repeated by numerous surgeons and scientists. Not much has been learned from experiments in humans, except that, when tumors were implanted into the same individuals in whom they arose, they grew, whereas they did not grow when transplanted from one man to another.

Innumerable experiments on transplantation of tumors, however, have been carried out on mice, rats, and other laboratory animals. From these experiments information has been accumulated that probably is fully applicable to humans. On the basis of more recent experiments carried out on mice, the following possibilities have to be considered in reference to the proposed implantation of human tumor cells into the volunteering convicts. 1. It is most probable that the implanted tumor cells will fail to grow, and no tumors will develop at the site of the injection. The possibility cannot be excluded, however, that 20 or 30 years later, in the same individuals, and as a result of the inoculation, tumors may develop elsewhere in the body. 2. Another possibility that also has to be considered is that the individual inoculated with tumor cells will remain in good health himself, not showing immediate or delayed results of the injection. However, should this individual, after the injection, father children, some of such children, or such children's offspring, may develop a tumor.

Although these considerations are speculative, and are based only on data obtained on mice, they give, nevertheless, food for thought. It is apparent that any experiment dealing with the injection of live human tumor material into humans requires most careful evaluation of the risk involved. One cannot help wondering whether the possible scientific benefit of such an experiment will counterbalance the risk for the individuals concerned or their progeny.

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THE ROCKEFELLER DIET

To the Editor:—I wish to make certain comments about obesity and dieting in addition to those that appeared in my letter to the Editor in The Journal, June 30, page 901. The formula diet developed at the Rockefeller Institute Hospital is but one of many diets that have been used for the treatment of obesity. We have found it to be a convenient schedule but do not claim any unique properties for it. Other clinics, incidentally, have used similar liquid diets for initial reduction of weight. We have made a careful review of all available nutritional literature and have found no evidence to suggest that a diet with the proportions of protein, carbohydrate, and fat naturally occurring in human milk can produce any lesion of the liver, blood vessels, or any other vital structure.

The dangers of low-protein diet referred to in my previous communication concern specifically the diet that is selected from an assortment of natural foods. The danger of unsupervised low-protein diet selected from natural foods lies in the fact that the balance between protein and other nutrients in such a diet depends on the judgment of each patient. Some people, wrongly thinking that protein had caused their obesity, might push restriction to an extreme and end up with a diet entirely different from the moderate diet that we tested in our clinic. The formula diet, on the other hand, does not present this hazard, since the proportions are fixed in the original mixture. The patients can take more or less formula, but the balance of nutrients remains unaltered.

The important consideration in any discussion of obesity treatment is that all reducing diets are merely symptomatic measures. A physician must regard an obese person as the victim of a chronic disease. When this fact is recognized and understood, then he can prescribe treatment—through diet and otherwise—to fit the condition. Any diet becomes a fad if it is claimed to solve the problem of obesity. An essential part of any sensible diet is a wise doctor trained to manage a chronic and, at the present time, incurable disease.

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MEDICAL FILM REVIEWS

Pediatric Anesthesiology: 16 mm color sound showing time 20 minutes Prepared by M Digby Leigh, M.D., Los Angeles Produced in 1956 by Billy Burke Productions Hollywood, Calif Procurable on loan from E R. Squibb & Sons Division of Olin Mathieson Chemical Corp 745 Fifth Ave., New York 22

The film opens with a scene showing the differences in a well-oxygenated heart and a hypoxic heart This is followed by a scene showing the method of detecting hypoxia through constant monitoring of the heart sounds through a precordial stethoscope Succeeding scenes illustrate methods of avoiding hypoxia during pediatric anesthesia In addition, anesthetic techniques for specific operations, ranging from the simple to the more complex, are demonstrated The technique and procedures of anesthesia in infants and children are well covered While intratracheal anesthesia has such an important role, it is unfortunate that it was so overemphasized in relation to open-drop ether in such procedures as tonsillectomy and abdominal surgery There was also an overemphasis on the intravenous use of curare and pentothal The photography is excellent, and the description of procedures and demonstrations is clear and well organized This film is highly recommended for physician anesthesiologists, surgeons, surgical house officers, and senior medical students

Management of Streptococcal Infection and Its Complications: 16 mm., black and white sound, showing time one hour Produced in 1955 by and procurable on loan from Wyeth Laboratories 1401 Walnut St. Philadelphia, or American Heart Association Film Library 13 E 37th St. New York 16

This is a kinescope recording of a program presented by closed-circuit television on Feb 24, 1955 as part of the postgraduate program of the American Academy of General Practice After the opening remarks by Dr W B Hildebrand, president of the academy the following subjects are presented in the form of a symposium Epidemiology of Streptococcal Infection, by Dr L A Rantz Complications of Streptococcal Infection, by Dr J D Keith Diagnosis and Treatment of Streptococcal Infection, by Dr B B Breese, Prevention of Rheumatic Fever, by Dr G H Stollerman Summary, by Dr C H Rammelkamp Jr, and Applications to General Practice, by Dr Keith Hammond. Although this film is rather long, it is an excellent review of the present status of the subject. All in all, it is a very good presentation As a Kinescope recording the photography is very good It is highly recommended for internists, general practitioners, pediatricians, and house officers

The Clinical Manifestations and Treatment of Gout: 16 mm color sound, showing time 29 minutes Prepared by Elmer C Bartels M D., Lahey Clinic, Boston Produced in 1955 by the Worcester Film Corporation Boston for and procurable on loan from Sharp and Dohme Division Merck and Company West Point, Pa

This subject is well illustrated by the use of clinical pictures and charts The split-frame technique is used to give before and after demonstrations of patients these are interesting and prove the effectiveness of the treatment. A comparison is made between gout, rheumatoid arthritis, degenerative arthritis, and gouty arthritis The film deals with diagnosis, clinical manifestations, and present-day therapy of gout, with particular reference to Benemid The important new developments of treatment, such as a low-purine diet, introduction of corticotropin (ACTH), and the use of colchicine, are emphasized. The author also emphasizes the differential diagnosis This well-organized film is scientifically accurate The photography is excellent, and the narration is very good It is recommended for general practitioners, medical students, residents, and interns

Liver Biopsy with Vim Silverman Needle 16 mm, color sound, showing time 18 minutes Prepared by Charles H Brown M D., and Arthur M Clark, M.D Cleveland Clinic. Procurable on loan from Charles H Brown M D the Cleveland Clinic, 2020 E. 93rd St. Cleveland 6

This film emphasizes the value of liver biopsy in making an accurate diagnosis of disease of the liver The technique of using the Vim-Silverman needle is very carefully demonstrated, with both the transthoracic and abdominal methods shown The author lists the indications for liver biopsy and shows photomicrographs of specimens that can be obtained by this technique He also lists the contraindications and the complications that have occurred in approximately 800 biopsies It is felt that this film minimizes the danger of complications that might occur in the hands of untrained personnel The photographic technique and quality are good

Thiersch s Operation for Anal Incontinence and Minor Degrees of Rectal Prolapse 16 mm., color sound, showing time 18 minutes Prepared in 1954 by and procurable on loan from Vincent A. Cianci, M D., 54 Pocasset Ave., Providence 9 R. I.

The purpose of this report-type film is to introduce Dodd s modification of the Thiersch operation for certain types of rectal prolapse Four cases are shown—one with complications—that demonstrate findings before operation and results obtained after operation X-ray studies show the wire in position after surgery The last case shown is a surgical demonstration of the modified operation Indications for the operation, the course, and subsequent treatment, along with the complications that might be expected and their treatment, are also discussed The surgery is well done The surgical photography is satisfactory, although better lighting would have improved the film in some places Several of the preoperative views were taken from still color slides The narration by the author is adequate The film would be suitable for general practitioners and surgeons interested in the Dodd modification of the Thiersch operation

The Human Brain: 16 mm black and white sound, showing time 10 minutes Produced in 1954 by Encyclopaedia Britannica Films Inc. in collaboration with Nathaniel Kleitman Ph D., Chicago Procurable on rental or purchase from Encyclopaedia Britannica Films Inc. 1125 Central Ave Wilmette Ill.

The film reviews the structure of the brain by an animated sequence that explains briefly the functions of the brain stem and cerebellum Then it takes up the cerebrum, which is the organ that controls learned and conscious behavior In a live-action sequence, the film describes how the cerebrum develops with an individual s growth from birth to adulthood With a driver in a traffic situation used as an example, the thinking process performed by the cerebrum is described. This film, in a suitably elementary manner, describes the function of the brain and also shows some of the principal anatomic pathways for carrying out these functions It is essentially accurate and would be useful at the 9th or 10th grade level

Dr. [illegible] Library
[illegible] Medical College

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Endocrine Activity in Anorexia Nervosa R W Emanuel J Clin Endocrinol 16 801-816 (June) 1956 [Springfield, Ill]

Eight female patients between the ages of 15 and 26 years and one 20-year-old man with anorexia nervosa in whom symptoms of the disease had persisted for a minimum of five years were studied, and two women aged 23 and 24 years who had recovered from anorexia nervosa served as controls An attempt was made to determine the activity of the anterior pituitary, adrenal cortex, thyroid, and ovaries Estimation of the urinary excretion of the follicle-stimulating hormone together with the insulin-tolerance test were used for the assessment of anterior pituitary function The urinary 17-ketosteroid excretion before and after administration of corticotropin (ACTH), estimations of the serum electrolyte levels, a simplified water excretion test, and the Robinson-Power-Kepler test were used for the assessment of adrenocortical activity Measurements of the basal metabolic rate, radioactive iodine studies, and estimations of the serum cholesterol level were used for the assessment of thyroidal activity Ovarian activity was studied by examination of vaginal smears Results suggested decreased activity of the anterior pituitary and an associated reduction in the function of the adrenal cortex, thyroid, and ovaries Normal activity of these glands was observed in the two control patients who had recovered This suggests that no irreversible change had occurred during the course of the disease

Ten Cases of Rheumatoid Arthritis Treated with PAS and Other Measures over a Two-Year Period B Haynes M J Australia 1 692-696 (April 28) 1956 [Sydney, Australia]

Haynes presents observations on 10 patients with rheumatoid arthritis receiving a standard treatment consisting of rest, the prophylactic administration of sulfadiazine, and the exhibition of aminosalicylic acid (PAS) and gold The aminosalicylic acid was given in doses of 0 5 or 1 gm every four hours and this regimen has been continued for from 14 to 31 months The daily dose of aminosalicylic acid ranged from 3 to 6 gm , the usual and minimum dose being 3 gm per day There were no toxic symptoms, and it was never necessary to suspend administration of the drug All 10 patients are still alive, 8 are back at their usual occupations, and 7 of these 8 are free of pain or disability Five patients have normal blood sedimentation rates Eight patients have a complete, pain-free range of movement in every joint Subluxation, ulnar deviation, or hyperextension has not developed in any of the patients No gold had been given to five of the patients for a year, and three had never received gold

Observations on these 10 patients and on 60 others receiving similar treatment convinced the author that aminosalicylic acid has an antirheumatic action similar to that of other salicylates, such as sodium salicylate and aspirin Its action is slower than that of sodium salicylate or aspirin, but more prolonged The author feels that the slower action of aminosalicylic acid is an advantage in rheumatoid arthritis While this drug is not a "cure" for rheumatoid arthritis, the cases reviewed illustrate that, in combination with rest, the prophylactic administration of sulfonamide drugs, psychotherapy, and prolonged supervision, it can prevent the development of crippling deformities and return the patient to normal or nearly normal life in a reasonable period of time An assessment of the therapeutic response according to the criteria of the American Rheumatism Association is given in a table Five patients, possibly six, achieved a complete remission–grade 1 therapeutic response The remainder experienced major improvement–grade 2 therapeutic response

Effect of High Doses of Vitamin B_{12} on Leukopenia Caused by Nitrogen Mustards L Masetto and M Butto Gior clin med 37 204-216 (Feb) 1956 (In Italian) [Bologna, Italy]

The authors studied the effect of vitamin B_{12} on 15 patients who were being treated with nitrogen mustard for tuberculous lymphadenitis, Hodgkin's disease, histiocytoma, reticulosarcoma, leukemia, and polyarthritis When treatment with vitamin B_{12} was started, the patients had received 14 mg of nitrogen mustard, and this was continued up to 28 mg The dose of vitamin B_{12} was 1,000γ per day up to a total of 12,000γ A second group of 15 patients undergoing treatment with nitrogen mustards was not given vitamin B_{12} Leukopenia was controlled with several blood transfusions A control group of 15 normal people was given vitamin B_{12} for 12 days in order to determine its effect on leukocytes Lethal doses of nitrogen mustard cause severe aplasia of all hemopoietic tissues Mitosis and severe alteration of lymphocytes takes place in the lymphatic tissue six to eight hours after the intoxication Extensive destruction of the lymphatic elements, e g , the lymph nodes of the thymus, of the spleen, and of the intestines, follows with in 24 hours Leukopenic effects follow a slight and transitory increase of the leukocyte count noticed shortly after the nitrogen mustards are given The lowest values are observed 12 to 14 days after the beginning of the treatment Lymphocytopenia is noted first, it increases for a few days Leukopenia, which becomes more pronounced later, is caused by the decrease of the granulocytes, which may reach such low values that agranulocytosis may develop Three days after combined treatment with vitamin B_{12} , the number of white cells increased to 6,750 The maximal number of 7,035 was reached after the sixth day During the following days of treatment the values oscillated around the same numbers On the last day of treatment they were at 6,975 After a week their number was close to the number of leukocytes present before the treatment A second effect of vitamin B_{12} is to promote leukopoiesis after the therapy has been terminated The mechanism of action of vitamin B_{12} is still obscure Its effects, however, are definitely leukostimulating Inconvenient side-effects did not result from the use of vitamin B_{12}

The Problem of Arsenic in American Cigarette Tobacco H S Satterlee New England J Med 254 1149-1154 (June 21) 1956 [Boston]

Analytic data are presented to show that the arsenic content of various popular brands of American cigarettes averaged 12 6 mcg per cigarette as sold between 1932 and 1933, and that, according to the data published between 1950 and 1951, the arsenic content increased to 42 mcg per cigarette, or more than 300% in 20 years This increase is attributed to the use of arsenical pesticides on American tobacco plantations Statistics are cited to show that cigarette smoking, as indicated by production and sales, increased more than 300% in the same 20 years and that the death rate from cancer of the lung in the United States rose 200% in women and 600% in men during the 20-year period ending in 1954 These data are regarded as relevant to one phase of a public-health problem that is concerned with the wider question of cancer produced by arsenic and also with the closely related problem of the increasing amount of air-borne arsenic in urban atmospheres that are polluted by arsenic derived from petroleum fuel combustion, both indoors and outdoors, and by air borne

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed "Library, American Medical Association' Periodical files cover 1947 to date only, and no photoduplication services are available No charge is made to members, but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them arsenical detritus from the abrasion of synthetic rubber tires and tarred or oiled roads Reliable data in this field are lacking

Analytic data on graded filtrations of air suspended particles show that the arsenic content of such particles is unstable and that it varies inversely with particle size Strict precautions are needed to avoid errors because of losses of volatile substances in assays of such material An improved method is recommended for indoor collection and immediate extraction of arsenic in acid solution of small volumes of air when microdeterminations of background arsenic" in any situation are made When the pulmonary excretion of arsenic especially among city dwellers is considered it seems possible that excessive inhalation of arsenical cigarette smoke, aggravated by arsenical pollution of urban atmospheres serves to obstruct or render stagnant the bronchial current of arsenic excretion and so favors induction of bronchogenic cancer in cigarette smokers Presumably this might occur more frequently in men than in women since men lack the safety valve of the periodic discharge of excessive arsenic from the blood stream through the uterine mucosa and cervix uteri during menstruation Special techniques for employing radioarsenic are regarded as promising implementation for clarifying the problem of air borne arsenic and smoke-borne arsenic in relation to lung cancer occurring in cigarette smokers and in others who live in air polluted industrial cities

Jaundice Associated with the Administration of Chlorpromazine J Gambescia J Imbriglia, P Galamaga and W Winkelman Gastroenterology 30 735-751 (May) 1956 [Baltimore]

Jaundice developed in 8 of 700 patients who received chlorpromazine orally The experiences with hepatic disorders during chlorpromazine therapy described in this paper were accumulated in observations on these 8 patients and in studies on 230 of the 700 patients who were followed up with repeated physical examinations and liver function tests The incidence of an overt icteric state after the continuing oral administration of chlorpromazine in this series was 1 1% What part nonicteric subclinical hepatic impairment contributes to the incidence is not clear While there is reason to expect that a nonicteric phase is represented, the exact definition of this type of response is not crystallized In the patients who were receiving chlorpromazine, abnormal liver function tests were obtained in 12 in the absence of icterus, but in 4 the tests were abnormal even before the initiation of the project In eight others the authors were unable to evaluate the status of the tests prior to the institution of chlorpromazine therapy Four of the 12 patients demonstrated a transiency in the hepatic tests that could be evidence of chlorpromazine toxicity The incidence did not exceed what one could expect in the general adult population Hence, it would not be justified to interpret this as evidence of subclinical hepatic impairment secondary to chlorpromazine therapy

The authors conclude that the lesion produced by chlorpromazine is due to hypersensitivity If this hypersensitivity is not overcome it may be reproduced by a single therapeutic dose of chlorpromazine The end-organ of this hypersensitivity response is the cholangiole (bile canalicus) The lesion may be identifiable by liver biopsy and can be distinguished from viral hepatitis The use of sodium dehydrocholate is contraindicated in the presence of this lesion The use of corticotropin and cortisone has an apparently beneficial effect, possibly by suppressing the local changes associated with the hypersensitivity response but these agents are not to be regarded as curative, moreover the sensitivity response initially may be of such magnitude as to overcome their suppressive ability When corticotropin and cortisone are chosen as therapeutic agents, they should be used for at least 30 days because shorter periods of treatment may be followed by relapse When chlorpromazine has once sensitized a patient, its renewed administration is inadvisable While the biochemical picture described is that of hyperbilirubinemia and hyperphosphatasemia, slight abnormality of the flocculation tests need not be taken as evidence against the existence of chlorpromazine hepatitis Clinical jaundice is not a necessary accompaniment of this illness, and such signs as fever, an elevated phosphatase level, and eosinophilia may be the only indications of its presence

Experiences with Meticorten and Meticortelone J H Solem and O Rømcke Tidsskr norske lægefor 76 321-324 (May 15) 1956 (In Norwegian) [Oslo, Norway]

Meticorten (prednisone) and Meticortelone (prednisolone) are active antirheumatic and anti inflammatory steroids The impression of the results of their application in 20 patients with various diseases is that these substances seem to be at least four or five times as effective as cortisone The daily dosage was usually 15 mg daily at the most 30 mg daily Subjective and objective improvement was seen in the treatment of rheumatoid arthritis, ankylosing spondylitis bronchial asthma acute hepatitis idiopathic steatorrhea and Boeck s sarcoid The introduction of Meticorten in the treatment of two patients with an adrenogenital syndrome showed its superiority in suppressing excessive 17-ketosteroid excretion Two patients with polyarthritis in whom cortisone-fastness had developed reacted satisfactorily to Meticorten No edema formation was demonstrable The most usual side-effect was increased appetite Rounded facies was observed in 12 cases

Significance of Subcutaneous Infusion of PAS in the Treatment of Pulmonary Tuberculosis Dr A von Oppen Ztschr Tuberk 108 158-162 (No 3 and 4) 1956 (In German) [Leipzig Germany]

The use of aminosalicylic acid (PAS) has proved important in the treatment of tuberculosis by increasing the effect of streptomycin or isoniazid and by retarding the development of resistance to these drugs Oral administration of aminosalicylic acid has however certain disadvantages such as the development of gastrointestinal disturbances difficult resorption when the intestinal function is impaired and the aversion of the patient to oral intake Intravenous infusion has been tried but this too has certain disadvantages This paper is concerned chiefly with subcutaneous infusion, which was tried by American authors (Bloch and Barclay) in 1949 The apparatus for infusion consists of bottles like those used for blood transfusions or for infusion of isotonic sodium chloride solution Because a solution of aminosalicylic acid is highly sensitive to light, the bottles are covered with a black cloth The middle or upper third of the anterior aspect of the thigh is the best site for subcutaneous administration, because infusion into the external surface is often accompanied by severe pain, and infusion into the internal surface sometimes results in damage to the femoral vessels

The time required for an infusion usually varied between two and one-half and four hours The therapeutic concentration in the blood is usually reached within 30 minutes attains a maximum after 3 hours, and after that subsides slowly so that the concentration is still adequate after 12 hours More prolonged infusions did not noticeably prolong the duration of action It appears that the concentration of the drug within the blood is dependent less on the rapidity of the infusion than on the size of the depot Usually one subcutaneous infusion of 12 gm of aminosalicylic acid is given daily In urgent cases, a second infusion of 12 gm may be given in the afternoon, approximately from six to eight hours after the start of the first infusion Patients nearly always prefer the subcutaneous to the intravenous or oral method of administration It is necessary, however, to give detailed attention to certain technical factors that the infused solution has the correct concentration, that pyrogen-free water is used, that the solution is protected against decomposition, that the cannula is in the proper position, and that the rate of inflow is properly controlled Careful attention to these details will prevent undesirable secondary effects even with routine daily administration of the solution of aminosalicylic acid

Thrombocytopenic Purpura in Infectious Mononucleosis E Pader and H Grossman New York J Med 56 1905-1910 (June 15) 1956 [New York]

Twenty-one cases of thrombocytopenic purpura occurring in patients with infectious mononucleosis have been collected from the literature, and two additional cases are described in a 17-year-old girl and a 20-year-old man In most of the cases from the literature, the usual symptoms of mononucleosis, such as sore throat, fever, malaise, enlarged tender lymph nodes, and headache were present before or during the occurrence of abnormal bleeding None of the symptoms usually associated with infectious mononucleosis were present in the 17-year-old girl before the onset of purpura Multiple small purpuric areas were present over the entire body, mostly on the face, neck, trunk, and lower extremities She received intramuscular injections of penicillin, and extensive ecchymoses appeared at the sites of the injections on the left arm and both buttocks Physical findings usually associated with infectious mononucleosis were lacking except for moderate splenomegaly Thrombocytopenic purpura thus occurred as the only manifestation of infectious mononucleosis The patient's course was entirely benign, the purpuric and ecchymotic areas faded gradually, and no fresh bleeding appeared She received no therapy except iron for mild hypochromic anemia In the male patient, the clinical picture and the typical appearance of the Downey cells in the peripheral blood established the diagnosis of infectious mononucleosis In contrast to the case of the girl, the only manifestation of a bleeding tendency was the presence of petechiae on the palate and uvula

It is known that latent idiopathic thrombocytopenic purpura may be activated by acute infection, but none of the patients reported on had a previous history of hemorrhagic tendencies, and they showed complete clearing of bleeding tendencies and thrombocytopenia with cessation of the infectious mononucleosis This is to be considered as strong presumptive evidence that the thrombocytopenic purpura was secondary to the infectious mononucleosis The occurrence of a significant thrombocytopenia with infectious mononucleosis, even in the absence of hemorrhagic phenomena, is rare A review of the cases of 300 consecutive patients with infectious mononucleosis from the records of the Mount Sinai Hospital in New York City revealed that thrombocytopenic purpura developed in only 2 patients (those reported by the authors) The incidence of thrombocytopenic purpura with infectious mononucleosis, therefore, appears to be approximately 0 7% In the purpura associated with infection such as mononucleosis, the infectious agent combines with the patient's platelets to form an antigen In some patients, depending on individual susceptibility, this antigen may lead to formation of antibodies (humoral factor), which may destroy platelets and possibly injure megakaryocytes Further experimental studies will be needed to verify this concept, which represents an attractive hypothesis

Hypercalcemia and Renal Injury in Sarcoidosis B Kuhlback and W Nyberg Finska lak -sallsk handl 98 181-185 (No 2) 1955 (In Swedish) [Helsingfors, Finland]

The cause of hypercalcemia in patients with sarcoidosis is not fully understood Investigations by Anderson and associates indicate that the increased calcium content in the serum depends partly on increased bone destruction and partly on greater calcium absorption from the intestine Cortisone inhibits both these factors Vitamin D increases calcium absorption from the intestine and in this respect exerts an antagonistic action toward cortisone Sarcoidosis therefore seems to be a condition characterized by increased sensitivity to vitamin D Renal injury in sarcoidosis probably depends in many cases on hypercalcemia with resulting nephrocalcinosis In the author's case of sarcoidosis with hypercalcemia and slight renal injury, the serum calcium values decreased after cortisone treatment and the renal function returned to normal

Value of Treatment in Reiter's Disease W Fowler and G H Knight Brit J Ven Dis 32 2-6 (March) 1956 [London, England]

Clinical syndromes consisting of nonspecific urethritis, conjunctivitis, and arthritis may occur either in association with bacillary dysentery or in the absence of any signs or recent history of intestinal disorder, and it has become customary to refer to both syndromes as Reiter's disease or Reiter's syndrome The etiology of the disease is obscure, and opinion is divided as to whether it has one or many causes and whether there is any effective treatment The authors review the effects of various treatments in 73 male and 2 female patients, none of whom had a recent history of dysentery or gonorrhea Nonspecific urethritis and acute hydrarthrosis of at least one joint were present in every patient Ocular and cutaneous manifestations were each present in 22, but only in 5 patients were both present Five patients received no treatment other than rest in bed, and the remaining 70 were given one or more types of systemic therapy The duration of the illness was no shorter in those receiving treatment than in the five untreated patients The authors found no evidence that any form of therapy has any influence upon the course of the illness

Fever therapy was no more effective than the antibiotics when given at the start of the illness, and, when it is considered that it is usually given after the illness has been present for some time and over a period of from 12 to 20 days, it is seen that the slightly higher recovery rate after fever therapy is of no significance and that there is no proof that this is an effective treatment for Reiter's disease There is no proof that cortisone or antihistamines alone or combined with streptomycin shorten the duration of the illness, although at times these hormones can produce temporary suppression of symptoms and signs The results of gold therapy likewise did not suggest any beneficial effect The salicylates seemed to have no more than an analgesic effect

Rothmund's Syndrome Two Cases A Gonzalez Ochoa and E Zajur Dip Gac méd Mexico 85 721-734 (Oct -Nov -Dec) 1955 (In Spanish) [Mexico, D F , Mexico]

Rothmund's syndrome (ectodermal dysplasia, ocular lesions, mainly cataract, and hypogenitalism) is rare The cutaneous lesions appear in infants between the ages of 3 and 6 months, with atrophy, telangiectasis, and regions of pigmentation Bilateral cataract is either congenital or appears in the children when they are between the ages of 3 and 7 years In some cases there is dyskeratosis or degeneration of the cornea Hypogenitalism and other endocrine disorders are always present In some cases there is a marked scarcity of the eyelashes and the eyebrows, lack of hair, acromicria, atrophy of the fingernails and toenails, mental deficiency, and saddle nose The two cases reported by the authors are the 24th and 25th in the literature The patients, two sisters, 15 and 9 years old, presented the typical syndrome They were greatly undersized Bilateral cataract developed in the 15-year-old girl when she was 6 years old The syndrome was complete with cutaneous lesions and hypogenitalism, as shown by laboratory tests The 9-year-old patient had acromicria and deformities of the fingers Because of her age, data on hypogenitalism could not be obtained The parents were not related Both patients are greatly retarded mentally

Some Effects of Severe Chronic Anaemia on the Circulatory System W Whitaker Quart J Med 25 175-183 (April) 1956 [Oxford, England]

The purpose of the present study was to investigate the circulatory system of patients with severe chronic anemia by comparing observations made before and after treatment and to assess the significance of abnormal features Particular attention was given to abnormalities of the renal circulation, and these abnormalities were considered in relation to heart failure complicating anemia and to hypertension appearing after treatment Of the 10 patients studied, 8 had macrocytic anemia of the Addisonian type, one had carcinomatosis due to breast cancer, and the 10th had chronic gastrointestinal bleeding The cardiac output fell with treatment in all cases, except for one patient whose initial hemoglobin level was greater than 7 gm per 100 ml The high cardiac output in the anemic patients was not related to an abnormally high oxygen consumption but, together with increased removal of available oxygen, provided a normal amount of oxygen for the body Increased stroke-volume, rather than tachycardia, appeared to maintain the high cardiac output There was no direct relation between fall in cardiac output and fall in right atrial pressure with treatment A high cardiac output appears to be independent of elevation of the venous pressure in patients with anemia The anemic patients had high pulse pressures and low diastolic blood pressures After treatment, three patients had abnormally high arterial blood pressures, and it was concluded that severe anemia either masked hypertension or predisposed the patients to it

An over-all vasodilatation was found to be associated with renal vasoconstriction This selective alteration in peripheral vascular resistance produced an unusual distribution of blood, with an abnormally small fraction of the cardiac output flowing to the kidneys The renal fraction of the cardiac output was reduced enough to cause the absolute renal blood flow to be abnormally low, even though the cardiac output was raised Renal anoxia seems to be an inevitable sequel to a low renal blood flow in anemia and has been discussed as a possible cause of salt and water retention and of arterial hypertension after treatment The change in the hematocrit value prevented the striking alterations in renal blood flow from markedly affecting the renal plasma flow The glomerular filtration rate was affected similarly to the renal plasma flow It was impossible to relate the disappearance of congestive heart failure, which occurred in four patients with treatment of the anemia to any change in tubular load There was no constant alteration in the filtration fraction with treatment, a fact that showed that renal vasoconstriction did not predominantly affect either the afferent or the efferent arteriole

An Investigation of Prolonged Insulin Resistance in a Case of Diabetes Mellitus J R Presland and C M Todd Quart J Med 25 275 284 (April) 1956 [Oxford, England]

The patient was an obese 57-year-old woman whose diabetic condition was discovered in 1940 At that time, glycosuria was controlled with 40 units of insulin a day After 12 years without insulin therapy, the patient was given 35 units daily during the treatment of a furuncle on the hand A month later insulin resistance developed and increased until 500 units daily was insufficient to control the diabetic state She was hospitalized in diabetic coma that was controlled in 24 hours by the administration of 3 000 units of insulin and 7 liters of isotonic sodium chloride solution Recovery from coma was followed by several episodes of infection accompanied by a spectacular rise in the insulin requirements The diabetic state was ultimately controlled at the level of 600 units of insulin per day, and this requirement persisted until the patient s death from coronary complications

The novel feature of this case was the presence of a large amount of insulin in the blood Although the insulin was not assayed, the experiments indicated that the circulation might contain about 1 000 to 1 500 units and the total extracellular fluid possibly 3 000 to 4 000 units at the height of the resistant state The insulin was either free or reversibly bound to plasma protein It was capable of exercising its normal effects, because it exerted a characteristic hypoglycemic action in the rat and stimulated the formation of glycogen in isolated rat muscle When insulin was withheld from the patient, the hypoglycemic activity of the serum diminished almost to the point at which it was undetectable in the rat preparation Experiments with protein fractions of the serum showed that the insulin was associated with the β-lipoproteins There was evidence that insulin resistance was due not to inadequate absorption or to excessive inactivation of insulin but to defective response in the tissues The plasma-protein spectrum changed as the insulin requirement diminished

The Finger-Nails in Chronic Hypoalbuminaemia A New Physical Sign. R C Muehrcke Brit M J 1 1327-1328 (June 9) 1956 [London England]

The fingernails were examined in 250 healthy adults in 500 patients with normal serum albumin levels, in 31 patients with the nephrotic syndrome and in 34 patients with hypoalbuminemia from other causes Observations were also made of the fingernails after infusion of salt-poor human serum albumin after corticotropin and cortisone therapy, and after an increase of serum albumin noted after spontaneous diuresis Abnormal changes were observed consisting of the appearance of paired narrow white bands in the fingernails of patients with serum albumin levels persistently below 2 2 gm per 100 cc These two transverse bands ran parallel to the lunule They were not palpable did not indent the nails, and were separated from each other and from the lunules by areas of normal pink nail These bands were not found in any healthy person or in patients with serum albumin levels above 2.2 gm per 100 cc This finding is unique, because it reflects a specific biochemical abnormality, i e, chronic hypoalbuminemia Although white bands are most often seen in patients with the nephrotic syndrome, they are not specific for any one disease state In the patients studied, the paired white bands did not regress with vitamin therapy, but they disappeared when the serum albumin was maintained above 2 2 gm per 100 cc with the aid of intravenous administration of salt-poor human serum albumin or cortisone and corticotropin therapy A spontaneous rise in serum albumin also caused the white bands to disappear

SURGERY

Symphysis of the Pericardium Results of Pericardectomy with Reference to 80 Cases Observed at the Lyons Center of Cardiovascular Surgery P Santy, P Marion, J Gravier and P Charnay Semaine hôp Paris 32 1883-1890 (May 30) 1956 (In French) [Paris, France]

Study of the results obtained by pericardectomy in 80 patients subjected to this operation since 1937 shows the importance of distinguishing between the three well-defined anatomoclinical types of constrictive pericarditis The first, or calcific type with or without an aseptic pus formation usually occurs in middle age and is hardly ever found in persons aged less than 20 years The earliest symptoms in the 32 patients with pericarditis of this type dated back an average of five years before the operation was decided on The second type, or fibrous constrictive pericarditis was found in 23 patients, one of whom had a genuine cold abscess of the pericardium These patients averaged 25 years in age, and, since their earliest symptoms dated back only three years, not only were the patients younger but the disease was also more recent than in the case of calcific pericarditis The third type, or subacute epicardial constrictive pericarditis, was present in 26 patients averaging 26 years in age The duration of the symptoms in these patients was measured in months, not years, and the operation was performed, on an average, eight months after the onset of the initial acute pericarditis Tuberculosis is unquestionably an underlying cause of constrictive pericarditis in many cases, especially of the fibrous and subacute varieties

The 16 postoperative deaths in this series occurred within the first 19 days, 6 of them before the end of the 3rd day, and were due chiefly to cardiorespiratory failure (5), progressive anoxia (6) or suppurative mediastinitis (3) Analysis of the authors statistics shows that the operation is benign in subacute epicardial pericarditis only 8% of the patients with this form of the disease died Patients with calcific pericarditis, on the other hand had a mortality of 28% (40% for those with complete arrhythmia) as compared with 20 5% for those with the fibrous type One of the most important factors governing the operative risk is that of age in patients under 20, the rate was 11% in those aged 20 to 40 years, it was 17%, and in those over 40, it was 33% Another factor of importance is the duration of the disease the more recent forms carry a lesser operative risk than those of long standing The frequency with which the postoperative deaths are due to pleuropulmonary causes suggests that reduction of the operative mortality will depend largely on careful attention to the patient s pleuropulmonary status before, during, and after the operation

The results obtained in these patients were excellent 38 of the 56 with a follow-up of more than one year were cured, that is they were able to resume their normal activities completely and all signs of hypertension on the right disappeared. Great improvement was shown by six patients who had excellent subjective results, often considering themselves cured, and who were able to resume normal activity although on examination they were found to have enlargement of the liver and other sequelae of hypertension on the right These patients fall into two groups those in whom the results though imperfect, must be accepted as adequate because the risk of reoperation would outweigh any possible benefit to be derived from the procedure and those in whom reoperation is advisable and may lead to a complete cure Three of six patients in whom a second pericardectomy was performed were apparently cured at follow-up one year later, and three others with a shorter follow-up were progressing favorably The three late deaths (eight months, three years and two years or more after operation) were due to tuberculous meningitis in one patient, who had been completely cured of his cardiac condition, and to purulent pericarditis and purulent pleurisy in the other two, whose condition had merely been improved Improvement of the late results depends on careful determination of the indications for operation and especially the time at which it should be performed, choice of procedure, and reoperation when necessary The complete long-term cures obtained by reoperation in three patients brought the total number of cures in this series to 41, or 76%

Pulmonary Tuberculoma W Klinner Arch klin Chir 281 537-546 (No 6) 1956 (In German) [Berlin, Germany]

The term tuberculoma was formerly restricted to sharply defined caseous foci in the brain and the liver, but, since pulmonary resections have been carried out, the term tuberculoma has been extended to similar lesions in the lung that on roentgen examination appear as solitary round shadows The lesion that is now designated as pulmonary tuberculoma was formerly generally referred to as a round infiltration or a round focus The term pulmonary tuberculoma should be restricted to large, definitely circumscribed, caseous necroses in which the alveolar framework is still demonstrable On the basis of studies on 40 resected specimens, the author discusses the structure as well as the pathogenesis and development of the pulmonary tuberculoma There exist two groups The one group has a necrotic nucleus surrounded by one or several fibrocaseous layers and a capsule of connective tissue The second group consists of a uniformly caseous area of necrosis separated from the healthy lung tissue by specific granulation tissue Both groups have in common the fact that they are connected with a bronchus, and this bronchial outlet explains the tendency to fusion and to breakdown This breakdown is greater in the second group of tuberculomas, which have less fibrous tissue, than in the first group Conservative treatment of pulmonary tuberculoma usually fails The author recommends lobar or segmental resection Mere enucleation or wedge excision is not advisable Of 40 patients operated on in the course of four years, 36 can be regarded as cured

Phenylbutazone in Treatment of Pleurisy After Thoracotomy E Castro Fariñas and R García Zozaya Rev clín españ 60 365-374 (March 31) 1956 (In Spanish) [Madrid, Spain]

Thoracotomy was performed in 15 patients with mitral stenosis, in 2 patients with arterial hypertension for a thoracic sympathectomy, and in a 7-year-old child for pulmonary stenosis Drainage was maintained for two or three days after the operation in the 15 patients with mitral stenosis who had a valvuloplasty Residual pleurisy developed in two or three days after the operation The treatment consisted of intramuscular injections of phenylbutazone in daily doses of 0 60 gm for four consecutive days The drug was also administered to the child in daily doses of 0 25 gm for four consecutive days The treatment was repeated after an interval of one day During treatment, the patients were on a salt-free diet and were given intravenous injections of a 40% levulose solution in repeated routine doses Satisfactory results were obtained in 16 cases None of the patients showed symptoms of cutaneous intolerance or digestive, hematic, neurological, or urologic disorders Pain and fever rapidly subsided, the roentgen picture of the chest became normal, and the patients had an uneventful convalescence of from 9 to 12 days The treatment had to be discontinued in two patients, in one because of intolerance shown by dizziness and vomiting and in the other because of inefficacy of the drug In both cases the treatment was changed to thoracentesis and antibiotics The patients were hospitalized for 15 and 35 days respectively The authors conclude that phenylbutazone is of value in the treatment of post-thoracotomy pleurisy, with satisfactory results in 90% of the cases The symptoms are rapidly controlled, the disease clears promptly and the period of hospitalization is shortened No intolerance to the drug was manifested when the drug was given intramuscularly

The Consequence of Neglected Hiatal Hernias B Blades and E R Hall Ann Surg 143 822-832 (June) 1956 [Philadelphia]

The authors believe that for the time being patients with asymptomatic hiatal hernias should not be operated on, but in the future this attitude may change All hiatal hernias that cause symptoms should, however, be treated surgically unless the patient's condition precludes operation The authors review observations on 66 patients with hiatal hernias who were operated on during the past three and one-half years These patients were observed in four hospitals that have a large percentage of elderly patients Thirty-two of the patients with symptomatic hiatal hernias had dangerous complications Esophageal stricture existed in 8 patients, bleeding in 22, carcinoma in aberrant gastric mucosa in one, and perforation of the herniated stomach in one Observations on their own patients and literature reports showed that serious complications of hiatal hernia are more common in elderly than in other patients Serious complications can and do occur in patients on limited diets, and drug therapy and in those receiving other measures that constitute accepted medical treatment Five of the 22 patients with hemorrhage required emergency blood transfusions for rapid bleeding and severe anemia Most of the hazards of operation are the result of the complicating hemorrhages or strictures

Improvements in anesthetic technique, the availability of blood transfusions, and other modern safeguards of surgery have made crushing or cutting the phrenic nerve for hiatal hernia an almost obsolete operation, however, under extraordinary circumstances a temporary paralysis of the nerve might be desirable Some surgeons favor the abdominal approach for hiatal hernia repair, but the authors used the transthoracic route in the older patients in this series, principally because the hernias were large and in each case the sliding, short esophagus type or a combination of sliding and paraesophageal hernia was present The technical advantages were considerable Conclusions concerning the final results in this series of cases cannot be made until the test of time can be applied Except for two known exceptions, the patients appear to have obtained good results

Gangrene of Gallbladder M de Juan Martin Cir ginec y urol 10 115-116 (March-April) 1956 (In Spanish) [Madrid, Spain]

Gangrene of the gallbladder is extremely rare A diagnosis is feasible only during operation The condition simulates acute cholecystitis or empyema of the gallbladder Gangrene produces gases and is manifested in the roentgenogram by a pneumoperitoneum It also produces peritonitis with or without perforation of the gallbladder The subject of this report was an apparently normal woman 70 years old Jaundice appeared without any previous symptoms and progressed for three days with nausea and moderate fever The patient complained of abdominal distention and pain on the right side of the abdomen A painful tumor was palpable over the iliac fossa On the fifth day of the illness the symptoms became acute With a diagnosis of empyema of the gallbladder, an operation was performed with the patient under ether anesthesia The patient was given blood transfusion during the operation When the abdomen was opened, a great amount of fetid gas escaped The gallbladder was enormously dilated, with large patches of gangrene over its anterior surface A puncture of the bladder obtained a fetid purulent liquid A cholecystectomy was carried out The removed gallbladder contained 23 calculi Gangrene involved the anterior surface of the structure and especially the distal pole The postoperative period was uneventful The patient was discharged in two weeks and she is, at the present time, in excellent health

The Functioning Carcinoid Tumor—a New Clinical Entity Review of the Clinical Features of the Nonfunctioning and Functioning Carcinoid, Including a Review of Thirty-Eight Cases from the Literature Parts I and II T W Mattingly M Ann District of Columbia 25 239-254 (May) and 25 304-312 (June) 1956 [Washington, D C]

Mattingly states that the little tumors of the intestinal tract discussed in the two parts of this paper were at first not differentiated from carcinomas and were later reported as "little cell carcinomas," carcinoids, and argentaffinomas Today, the American literature refers to them as "argentaffinoma," but the original term "carcinoid" is more generally used in other parts of the world These tumors were generally regarded as harmless until 1953, but from 1953 to 1956 a series of events focused interest on the carcinoid tumor Lembeck, in 1953, isolated a substance from a carcinoid tumor that was identified chemically as 5-hydroxytryptamine and which is identical with vasoactive material called enteramine by Erspamer and serotonin by Rapport. This substance is found in enterochromaffin tissue and has been demonstrated to be pharmacologically active on smooth muscle producing intestinal peristalsis, bronchoconstriction, and varying effects on blood vessels Thus a new concept evolved namely, that certain carcinoid tumors were truly functioning tumors" with secretory cells, like the pheochromocytomas of the adrenal gland and the islet cell tumors of the pancreas The clinical aspects of the apparently benign nonfunctioning carcinoid as well as of this newly recognized functioning tumor are reviewed The symptoms of the nonfunctioning carcinoid depend upon the site of the primary lesion and on whether it has remained benign and localized to the submucosal region or whether it is locally invasive or has widespread abdominal metastasis

The author stresses the report on A Case of Angioma Telangiectaticum Cutis with Chronic Endocarditis and Malignant Carcinoid of the Small Intestine,' published by Scholte of Amsterdam in 1931 Although Scholte considered the possibilities of a common denominator in the production of the multiplicity of lesions he was unable to arrive at a suitable explanation for their relationship and decided that he was dealing with three separate diseases Since the original case of Scholte, there have been 20 additional well-documented cases with autopsy reports showing carcinoid lesions and endocardial lesions with good clinical descriptions of cutaneous vascular lesions There were also symptoms of hyperperistalsis (diarrhea) and metabolic disorders (loss of weight) Data are listed on eight additional patients in whom a diagnosis of malignant carcinoid was established by surgery, biopsy, or postmortem examination and who during life presented intestinal hyperperistalsis (diarrhea), weight loss, cutaneous flushing, and some cardiac symptoms or abnormal cardiovascular findings Autopsy, however, revealed no endocardial lesions in these eight patients A group of 9 living patients in whom a diagnosis of malignant carcinoids was made on the basis of biopsy brings the total reviewed by the author to 38 cases

The important symptoms in patients with functioning carcinoids were found to be gastrointestinal, cutaneous vascular, cardiovascular, and metabolic. The cutaneous-vascular symptom in the form of paroxysmal flushing of the skin was the most frequent extraintestinal finding The development of latent cardiac involvement with lesions of the pulmonic and tricuspid valves producing right-sided heart failure was the oustanding pathological entity other than the manifestations related directly to the tumor The outstanding metabolic disorder was that of altered tryptophan metabolism with loss of weight and the development of a protein deficiency Important biochemical alterations consist of the presence of abnormal amounts of serotonin in the blood and the excretion of abnormal amounts of serotonin metabolites in the urine The latter abnormality can be detected in the urine by laboratory tests Carcinoids occur throughout the intestinal tract from the cardia of the stomach to the rectum The functioning carcinoid tumors occur primarily in the small intestine chiefly in the ileum Considering the number of recent case reports it is possible that clinically functioning tumors may occur in as many as 25% of all malignant carcinoids of the small intestine

Adenomatous Polyps of the Rectum and Colon Their Relationship to Adenocarcinoma J W Hamilton, P Kisner and B R Walske Postgrad Med 19 569-576 (June) 1956 [Minneapolis]

Proctosigmoidoscopic examination has become an integral part of the general medical examination at the Veterans Administration hospital in Lincoln Neb The authors review observations on 1,221 consecutive patients who were subjected to such an examination in the years 1947 to 1954 This report is concerned only with adenomatous and adenocarcinomatous polyps familial polyposis, being a different disease, is disregarded One hundred seventy-one (14%) of the patients had adenomatous (90) or adenocarcinomatous (81) polyps Cramping abdominal pain was the predominant symptom in the patients with benign polyps This was particularly true in those in whom the polyps were situated above the rectosigmoid Rectal bleeding and a change in bowel habit were the most frequent symptoms in the patients with adenocarcinomatous polyps Sixteen, or nearly 10%, of the 171 patients had no symptoms A rectal operation for unrelated disease, such as hemorrhoids, had been performed in 11 (12 2%) of the patients with benign polyps and in 14 (17.2%) of those with adenocarcinomatous polyps This probably indicates that previous examination was inadequate Twenty-six of the 81 patients with adenocarcinomatous polyps died 20 of the disease and 6 of other causes The patients who had highly malignant tumors died of the disease, although a seemingly adequate definitive operation was performed The definitive operation usually was a radical Miles procedure

The age of the 90 patients with benign polyps was somewhat higher than that of the 81 patients with adenocarcinomatous polyps In 29 of the patients with benign polyps the polyps were multiple Benign polyps also were found in 61 of the 81 patients with adenocarcinomatous polyps The authors feel that too much reliance is being placed on roentgenographic examination, which was decisive, that is, it permitted the correct diagnosis after proctosigmoidoscopy had failed, in only one of the 90 patients with benign polyps and in 4 of the 81 patients with carcinomatous polyps Proctosigmoidoscopic examination permitted the correct diagnosis in 80 of the 90 patients with benign and in 58 of the 81 patients with malignant polyps

Segmental Resection for Segmental Ulcerative Colitis J M Donald, E G Givhan Jr and W N Viar Ann Surg 143 791-797 (June) 1956 [Philadelphia]

The authors report on three patients with segmental ulcerative colitis who were treated surgically The first patient had typical segmental ulcerative colitis that responded favorably to segmental resection In the second patient the segmental ulcerative colitis involved the terminal ileum and was complicated by stricture of the splenic flexure, perforation, and abscess formation This patient should have accepted operation much earlier Because of her poor condition at the time of the initial operation, an adequate resection was not performed It is believed that her present symptoms, though mild, are due to disease in the colon and to regional ileitis Another operation may become necessary in the future The third patient had segmental ileocolitis with free perforation at the ileocecal valve causing generalized peritonitis This case might be classified as regional ileitis with extension into the cecum rather than as segmental colitis It is included here because there are frequently no clear-cut distinguishing features clinically between regional ileitis, segmental ulcerative colitis, and diffuse ulcerative colitis The surgical treatment of segmental ulcerative colitis and that of regional ileitis are essentially the same, i e, segmental resection Free perforation is a rare complication in this disease

Although segmental ulcerative colitis has been fairly well established as a definite clinical entity, it possesses many of the characteristic features of both diffuse ulcerative colitis and regional ileitis It is not generally recognized as a special type of ulcerative colitis that can be treated by segmental resection It seems to occupy a midposition clinically and pathologically between diffuse ulcerative colitis and regional ileitis Like the other two conditions, it is a disease of young people, the peak incidence being in the third decade The most frequent symptoms are bloody diarrhea, abdominal pain, weight loss, and fever Physical findings include anemia, weight loss, and abdominal tenderness The most frequent complications are polypoid hyperplasia of the mucosa perirectal and perianal suppuration, hemorrhage, and stricture formation Systemic complications closely resemble those found in the diffuse type Malignancy, a definite hazard in diffuse ulcerative colitis, is rarely encountered in the segmental form In diffuse ulcerative colitis, the lesion begins in the rectum and spreads orad to involve eventually the entire colon Segmental ulcerative colitis usually begins in the ascending colon It may extend in either direction If untreated, the disease may eventually involve the rectum Clinically there are many points of similarity between diffuse colitis, segmental colitis, and regional ileitis Pathologists, however, report distinguishing characteristics Microscopically, regional ileitis is characterized by progressive granulomatous lymphangitis The entire wall, regional lymph nodes, and mesentery are involved Microscopically and grossly the damage in ulcerative colitis is severe but surprisingly superficial, being mainly restricted to the mucosa and submucosa

Medical treatment has been disappointing and should be reserved for the mild cases of segmental ulcerative colitis Complications and progression of the disease call for surgical treatment Side-tracking procedures, with or without exclusion of the diseased segment, which were advocated a few years ago, are no longer considered the treatment of choice Since colonic surgery has been made relatively safe, the preferred treatment is resection of the involved segments and reestablishment of intestinal continuity in one stage This is also the preferred treatment for patients with regional ileitis requiring operation While recurrence is a possibility regardless of the type of therapy employed, it is important to avoid ileostomy whenever possible

Massive Bleeding from Diverticulosis of the Colon C A Kunath Am J Surg 91 911-917 (June) 1956 [New York]

The author presents the histories of three patients with massive exsanguinating hemorrhage from the lower colon, in whom the hemorrhage was probably a complication of diverticulosis This complication is probably not so rare as it would seem from the scarcity of reports in the surgical literature, since all three of the patients were in the hospital at the same time All three were over 70 years of age In the colon the pouches are referred to as "false" diverticula, meaning that they consist only of the mucosal and serosal layers Appearing late in life, they apparently represent an inherent weakness of the muscular walls that have given way under the stress of constipation and increased intracolonic pressure This weakness usually occurs along the mesenteric border, where the vessels perforate the layers of the intestinal wall, hence the diverticulum is usually in close proximity to the vessels, which in many instances are rather large, especially the veins

There exist controversial aspects and unanswered questions regarding the management of such cases The first question that arises when one is confronted with a profuse hemorrhage from the lower colon is, "Will the bleeding stop spontaneously?" Statistics indicate that in a large percentage it will, this was the case in the third of the author's patients Observations on the first two patients show that bleeding will not stop in some The second question is what should be done at the time of surgery A definite diagnosis is the first prerequisite In the two surgically treated patients reported on this was facilitated by the availability of earlier roentgenograms of the colon, which revealed extensive diverticulosis Once the diagnosis of bleeding diverticulosis has been verified by exploration, two surgical procedures may be considered either blind resection of the area most involved, usually the rectosigmoid, or transverse diversion colostomy A third possibility would consist of the simple insertion of a catheter into the proximal colon, probably the cecum, through which coagulants could be administered topically In two of the reported patients this was done in a modified fashion, with the protruding but unopened loop of transverse colon used In each case the instillation of a mixture of powdered Gelfoam and the local administration of thrombin and neomycin was followed by a cessation of the bleeding Although in each case the colostomy was subsequently opened, the bleeding had apparently ceased before the diversion of the fecal stream This procedure of catheter cecostomy and topical instillation of coagulants is mentioned only because it parallels to a certain extent the current use of orally administered coagulants in gastric hemorrhage Diversion colostomy seems to offer greater certainty that the bleeding will cease

Pain in Peptic Ulcer M J Cavanagh and M N Friedman Am J Surg 91 943-945 (June) 1956 [New York]

The action of hydrochloric acid, motor dysfunction, local pathological changes, gastritis, duodenitis, and hypoglycemia have been suggested as causal factors of pain in peptic ulcer, but no acceptable conclusion has been reached The authors attempt to relate the preoperative symptom of pain to the degree of activity of the ulcer found at operation They analyzed a series of 101 patients who had undergone subtotal gastrectomies at the Veterans Administration hospital, Brooklyn, N Y In 86 of the patients the complete area of gastric or duodenal disease was excised and examined grossly and microscopically In 15 of the patients the area of duodenal disease could not be resected because of technical difficulties, but an adequate examination was carried out at the operating table via the open duodenum

The patients were divided into two groups according to whether the pain was present or absent Pain was a major complaint in the 64 patients of group 1, it was absent or slight in the 37 patients of group 2 For purposes of analysis of pathological material, an active ulcer was considered to be one in which there was interruption in continuity of the mucous membrane An intact mucous membrane overlying an area of pathological change was considered indicative of healed ulcer Pathological evidence of past ulceration was always found in patients with an intact mucous membrane The changes consisted of varying degrees of serosal scarring, adhesions to contiguous viscera, inflammatory infiltration, and fibrosis of the wall of the intestine Twenty-six (40 6%) of the 64 patients of group 1 had active ulceration, but 19 (51 4%) of the patients of group 2 had active ulceration These data suggest that the symptom of pain is an unreliable indicator of the state of activity of a peptic ulcer and in addition cast doubt on the claim that pain in peptic ulcer depends upon the presence of an active ulcer Seventy-three patients could be followed for from 4 to 17 months after surgery It was found that the relief of pain obtained by subtotal gastrectomy does not depend upon the degree of activity of the ulcer Excision of the diseased area is not essential for the relief of pain in patients with peptic ulcer

Plastic Surgery for Closure of Decubitus Ulcers in Patients with Paraplegia Based on Experience with 1,000 Cases H Conway and B H Griffith Am J Surg 91 946-975 (June) 1956 [New York]

Three hundred forty-five patients with paraplegia and quadriplegia were treated in the Veterans hospital, Bronx, N Y, in the five-year period from Jan 1, 1950, to Jan 1, 1955 Of these, 225 (65 4%) exhibited 600 decubitus ulcers, which either were present on admission, developed during prolonged hospitalization, or developed after discharge from the hospital and necessitated readmission One hundred fifty-eight of the ulcers were recurrent Three hundred forty-seven of the 600 ulcers were treated surgically, 148 of them requiring more than one operation A total of 415 operations were performed Two hundred fifty-three ulcers were treated conservatively Conclusions in this report are based on experience with these cases and an additional 400 decubitus ulcers reported on previously from the same hospital Sixty-five per cent of the patients had ulcers Ulcers occurred in 19 different sites Ischial, sacral, and trochanteric ulcers made up 71% of the total number and presented the greatest therapeutic challenge

Surgery was the most satisfactory form of treatment The most successful surgical measures were (1) excision of the ulcer, surrounding scar, underlying bursa, and soft tissue calcification, if present, (2) radical removal of the underlying bone, (3) use of fascia or muscle flap to cover bone stumps and fill dead space, (4) coverage with a large regional pedicle flap of skin and fat, and (5) thick-split skin graft to cover the donor site of the flap With this technique, the success of surgery, that is, the percentage of ulcers that healed and did not recur, was increased to 97% for ischial ulcers, 86% for trochanteric ulcers, and 84% for sacral ulcers The recurrence rate after surgery was 3% for ischial ulcers, 6% for trochanteric ulcers, and 11% for sacral ulcers The treatment of soft tissue calcification is still an unsolved problem Removal of this tissue is advisable when surgery is performed in the vicinity, and arthroplasty may be helpful in patients who have fused joints due to ectopic calcification of the soft tissues surrounding them The best treatment seems to be prevention by the methods of physical rehabilitation (early exercises and ambulation) Secondary amyloidosis seems to develop more commonly in patients with large chronic ulcers than in patients with urinary tract infections alone This is another argument for early closure of the ulcers

NEUROLOGY & PSYCHIATRY

Serpasil in a Hospital for the Mentally Ill with Criminal Tendencies J F McNeill, W C Johnston and W Pietuchow New York J Med 56 1911-1914 (June 15) 1956 [New York]

Reserpine (Serpasil) was given to 149 mental patients selected at random from 2,000 inmates of the Matteawan State Hospital, N Y They were admitted because they were insane and had committed a serious crime or were potentially dangerous to society Most of the patients were started on parenteral administration of one 5-mg ampul of reserpine per day, for one week Some patients received in addition 3 mg of the drug by mouth, this dose was increased up to 8 mg when parenteral administration of the drug was discontinued A few patients received the drug only by mouth and a few were given two ampuls or 10 mg per day parenterally One hundred forty-four patients received the drug for an adequate trial period of at least three weeks, and 111 (77%) of these showed a significant degree of improvement. Thirty-three (23%) were therapeutic failures Most of the improved patients had schizophrenia. The paranoids showed the best response to the drug Five patients died during the study, but none of the deaths resulted from the administration of reserpine Fifty-five patients (38.2%) had side-effects from the drug such as nasal stuffiness, diarrhea, constipation, lethargy, dizziness, and Parkinsonism Administration of the drug was discontinued because of the side-effects in two patients The authors feel that the side-effects might have been greater and the degree of improvement better if all the patients had received more adequate doses of the drug No absolute correlation could be made between improvement and the patient's weight gain or loss blood pressure response, or psychiatric diagnosis There is still no reliable method for determining which patients will be benefited by the drug

Vaccination Against Poliomyelitis B Hofman. Maandschr kindergeneesk. 24 141-149 (May) 1956 (In Dutch) [Leyden, Netherlands]

The Salk-type of poliomyelitis vaccine, containing virus that has been inactivated with a solution of formaldehyde, has been used on a large scale in the United States, Canada, and also in some European countries, such as Denmark. Although there has been a decrease in the paralytic cases of poliomyelitis during the year after vaccination a number of important questions still remain to be answered. These concern particularly the duration of the immunity induced by the vaccination and the effect of the vaccination on the epidemiology of poliomyelitis The author calls attention to the possibilities of vaccination with a live avirulent virus and explains why this type of vaccine may be preferred in the future Considering the present status of poliomyelitis in the Netherlands, he advises against vaccination with the inactivated virus and recommends waiting until a better method of immunization possibly with a live, avirulent virus, has been developed

Experience with the Use of Chlorpromazine and Reserpine in Psychiatry With Especial Reference to the Significance and Management of Extrapyramidal Dysfunction. G W Brooks New England J Med 254 1119-1123 (June 14) 1956 [Boston]

Chlorpromazine, reserpine, and a combination of these two ataraxic drugs were used in the treatment of 386 women with psychiatric disorders at Vermont State Hospital Two hundred twenty-six patients had schizophrenia, 30 manic reactions, 17 psychoneuroses, 11 personality disorders, 5 acute brain syndromes 55 chronic brain syndromes, 8 epilepsy, 13 mental deficiencies and 21 depressions Most of these patients were agitated or showed antagonistic attitudes The usual daily doses for the ataraxics were 300 mg of chlorpromazine or 3 mg of reserpine or in combination, 150 mg of chlorpromazine and 1 mg of reserpine Not more than 800 mg of chlorpromazine or 30 mg of reserpine or 450 mg of chlorpromazine combined with 3 mg of reserpine was given in one day The duration of treatment varied from one to 16 months

As a result of the treatment, 151 patients have been released from the hospital, 15 others are awaiting discharge; 85 are much improved, though still in the hospital, and 75 are improved in that they are quiet and cooperative with ward routine Thirty-six patients failed to respond to treatment or had to have the drugs withdrawn. Twenty-four patients died in the course of the treatment, but their deaths were not connected with the use of the drugs, and the death rate was normal in comparison with that observed in previous years The drugs appeared to facilitate communication with patients with chronic schizophrenia. A peculiar type of objectivity and constructive insight was noted in many patients

Signs of extrapyramidal dysfunction were observed in 204 of the 386 patients, and they were usually followed by initial signs of improvement in the patient's psychosis The chlorpromazine-reserpine combination tended to produce this dysfunction oftener and sooner than either drug alone The patient's progress was enhanced when the dysfunction was relieved by the administration of trihexyphenidyl (Artane) or methylphenidylacetate, which are now in use for this purpose in 80% of the drug-treated patients Conditions within the hospital have been significantly improved wards for disturbed patients have been virtually eliminated, the atmosphere of the dining halls and living areas has been transformed, and psychotherapeutic and sociotherapeutic facilities are being widely utilized These results emphasize the need for social agencies to help the hospital restore to society patients who are being retained at the hospital largely because their families can no longer take them back after five years or more of mental illness

Further Observations on the Laboratory Diagnosis of Aseptic Meningitis Caused by Group B Coxsackie Virus A J Beale, D Duncan W Stackiw and others Canad J Pub Health 47 179-186 (May) 1956 [Toronto, Canada]

It is now established that Coxsackie B virus is an important cause of aseptic meningitis, clinically similar to nonparalytic poliomyelitis Until recently, this evidence was indirect and was based on isolation of Coxsackie B virus from the stools of patients, serologic evidence of infection with the strain recovered, and failure to demonstrate infection with poliomyelitis, mumps or other viruses More recently, the direct isolation of Coxsackie B virus from the cerebrospinal fluid of several patients with aseptic meningitis has firmly established the etiological role of this agent. During 1952, patients with aseptic meningitis diagnosed clinically as "nonparalytic poliomyelitis" admitted to the Hospital for Sick Children, Toronto, were subjected to an intensive clinical and virological study Results of these studies were described in two previous papers, the first of which reported the isolation of Coxsackie B virus from the stools of 13 of 33 patients in suckling mice Poliomyelitis virus was isolated from only 6 of the 33 patients in monkeys or "Maitland" type tissue cultures The second paper recorded the isolation in monkey kidney "monolayer" cultures of Coxsackie B viruses from the cerebrospinal fluid of 3 of the group of 33 patients and "unidentified" viruses from the spinal fluid of two patients Monkey kidney monolayer cultures are more sensitive to poliomyelitis virus than those used in the first study They are also sensitive to Coxsackie B virus It seemed desirable, therefore to reexamine the specimens obtained from the patients originally studied in 1952 to determine the type of Coxsackie B viruses and to see if additional Coxsackie or poliomyelitis viruses could be isolated In addition, the poliomyelitis and Coxsackie B neutralizing antibody levels in the serums of patients excreting Coxsackie B were determined. The stools from 33 patients with aseptic meningitis seen in 1952 have now been examined by intracerebral inoculation of monkeys and suckling mice and by inoculation of monkey testis suspended cell cultures and monkey kidney monolayer cultures

Three strains of poliomyelitis type 1 13 strains of Coxsackie B4 virus, and 8 unidentified viruses were isolated on reexamination. No additional poliomyelitis or Coxsackie viruses were isolated by the new tests, but four additional orphan viruses were recovered Five patients were found to excrete both poliomyelitis and Coxsackie B viruses in their stools All the Coxsackie B viruses isolated, including three recovered directly from the cerebrospinal fluid, were shown to belong to Dalldorf's type B4 Serologic investigation of seven patients excreting Coxsackie B4 virus alone showed a rise in titer to the homologous virus in six instances Serologic investigation of two of the patients excreting Coxsackie B4 and type 1 poliomyelitis showed evidence of infection with both viruses

PEDIATRICS

Children with Hernias, Testes, and Female External Genitalia M R Gaspar, J H Kimber and K A Berkaw A M A J Dis Child 91:542-548 (June) 1956 [Chicago]

The cases of three children aged 5 years, a few days, and one month, respectively, with female external genitalia and inguinal hernia are described The first two children were siblings All three were operated on and were proved to have immature testes within their inguinal canals Uterus, tubes, and ovaries were absent These three children may represent a special class of intersexuality characterized by female physique, female breasts and external genitalia, absent or scant axillary and pubic hair, and absence of uterus, tubes, and ovaries Such patients differ from the usual male pseudohermaphrodite in that the structures derived from both the Mullerian and the Wolffian ducts are rudimentary or absent These persons reach adulthood as females They have normal sexual attraction toward males, do not menstruate, and are sterile Only time will determine whether these children fall into this special group

Any surgeon who operates on female children with hernias must view each patient as a possible male pseudohermaphrodite Biopsy should be performed on abnormal-appearing gonads, and they should not be removed In doubtful cases, the peritoneal cavity should be opened and the pelvis carefully inspected for internal sex organs at the time of the hernia repair Serious attention should be given to the question of raising patients of this type as boys or girls Consultation with psychiatrists and endocrinologists is advisable The cases of the three children reported on should alert physicians to be on the lookout for cases of intersexuality in female infants with hernias and, in particular, should lead surgeons to acquaint themselves with the proper method of handling the problem at the time of operation

The Prognostic Significance of Globulinuria in the Nephrotic Syndrome *An Electrophoretic Study of Urinary Proteins in the Nephrotic Syndrome and Acute Glomerulonephritis* W Heymann, C Gilkey and M Lewis A M A J Dis Child 91 570-576 (June) 1956 [Chicago]

Urinary proteins were studied by electrophoresis, using the conventional Tiselius technique, in 11 children with acute glomerulonephritis and in 32 children with the nephrotic syndrome Some of the determinations were made before treatment with cortisone and corticotropin was started and others were made after proteinuria had begun to decrease as a result of this treatment Twenty-four-hour losses of urinary protein in excess of gm , losses of globulin in excess of 2 1 gm , and an albumin-globulin ratio in the urine of less than 1 1 were noted only in nephrotic children whose disease progressed to renal failure When corticotropin or cortisone diminished proteinuria, the urinary albumin-globulin ratio was not specifically affected The albumin-globulin ratio in the urine of children with acute glomerulonephritis varied between 0 3 and 1 85 Because proteinuria is less marked and lasts less long, the magnitude of urinary globulin excretion in these patients is much smaller than in the nephrotic patients Despite certain limitations, the extent of globulinuria and the determination of the albumin-globulin ratio in the urine proved to be of prognostic value in four nephrotic children in whom definite evidence of ensuing renal failure was not yet available

Allergy in the Infant and Preschool Child B Ratner, L V Crawford and J G Flynn A M A J Dis Child 91 593-600 (June) 1956 [Chicago]

The allergic status was studied in 27 infants and 37 children between the ages of 2 and 5 years with asthma, eczema, hay fever, or urticaria The age of onset of allergy does not appear to be controlled by hereditary factors, for the incidence of inheritance in these young children was no greater than that found in other allergic persons Seventeen (27%) of the 64 patients gave evidence of congenital allergy (sensitization in utero) by skin tests of sensitivities to foods they had not previously ingested It seems that allergic diseases in young children show a predominance of eczema in the first years of life, followed by a fall in eczema and a rising incidence of asthma and hay fever as age progresses No cases of true hay fever were observed in the children before the third year of life Pollen asthma, however, did occur before this age The incidence of causative factors in the children as they progressed in age was characterized by a decreasing sensitivity to foods and an increasing sensitivity to pollen The incidence of sensitivity to miscellaneous inhalations was relatively high, whereas that of mold sensitivity was moderate In the first year of life, 100% of the patients reacted to foods alone or in combination with other allergens By the fifth year this was reduced to 60%

Chocolate was shown to be an infrequent offender Milk sensitivities occurred in 18 patients (28%) None of these patients reacted to milk alone Most of them reacted to the whey proteins Less than one-quarter reacted to the casein fraction Only this latter group required milk substitutes Most of the milk reactors tolerated heat-treated milk Thirty-one patients (48%) reacted to egg proteins, 30 (46%) reacted to one or more cereal grains, but none reacted to rice, 18 (28%) reacted to citrus fruits, 37 (58%) reacted to sea foods No patients reacted to ragweed alone, and practically all who reacted to ragweed also reacted to Pyrethrum and tobacco No patient reacted to grass pollen alone In none of the patients was timothy the sole offending grass Tree pollen sensitivity was at times the only pollen sensitivity Most of the miscellaneous inhalant sensitivities occurred with other sensitivities, but occasionally these inhalants were the sole offenders Mold sensitivity always occurred in conjunction with other sensitivities

Nasal eosinophilia was an important aid in the early diagnosis of allergy and occurred in 33 (89%) of the 37 children who presented adequate smears for this type of study Twenty children (31%) showed evidence of retardation of bone maturation Most patients responded well to a multifaceted therapy Infants with allergy should be skin-tested early and studied comprehensively The rehabilitation of a young allergic cripple should forestall or shorten the inroads of allergy in later years

Duodenal Ulcer in a 5-Month Old Infant R B Tudor Journal Lancet 76 168 (June) 1956 [Minneapolis]

The boy was born at term weighing 5 lb 10 oz (2,551 gm) During the neonatal period he had been vomiting his formula At the age of 5 months he was a well-nourished, active, pale child His temperature was 100 8 F (38-2 C) rectally and his weight 14½ lb (6,571 gm) The hemoglobin level was 2 7 gm The peripheral smear showed hyperchromia and anisocytosis Stools were positive for occult blood by the guaiac test Roentgenogram of the stomach and small intestine showed a definite ulcer crater situated in the superior distal portion of the duodenum After the child had been given whole blood, a changed formula, and medicaments, the hemoglobin level was found to be 14 5 gm , and when he was discharged from the hospital he appeared greatly improved Roentgenoscopy several months later revealed no ulcer crater

Peptic ulcers are being diagnosed with increasing frequency during the first two years of life The case presented emphasizes the fact that vomiting in early infancy may be caused by a gastrointestinal ulcer amenable to medical treatment

Relationship of Retrolental Fibroplasia to Oxygen Concentration D H Weintraub and A Tabankin J Pediat 49 75-79 (July) 1956 [St Louis]

Between July 1, 1952, and June 30, 1953, 83 premature infants were admitted to the Premature Center of the Children's Hospital of Buffalo, N Y In these infants, a controlled experiment was attempted in which observations were systematically made on the effect of alteration in the oxygen concentration on the incidence of retrolental fibroplasia Forty-nine infants were exposed to concentrations of oxygen of from 60 to 64% for 30 days and 34 infants were exposed to low concentrations of 30% for the same period All infants observed were placed in incubators Oxygen was administered from an outside bank of tanks and oxygen concentrations in each incubator were determined every three hours for the duration of the study All 83 infants were abruptly removed from the oxygen environment after 30 days Partial retinal detachment occurred in 17 of the 49 premature infants and complete retinal detachment (blindness) occurred in 8 infants Only one of the 34 premature infants exposed to low concentrations of oxygen (30%) had partial retinal detachment (with subsequent reattachment), and in none of this group did complete retinal detachment occur

After these data were obtained, the routine of oxygen administration at the Premature Center was revised Oxygen in concentrations above that of the outside air up to 38% and enriched with moisture was administered to infants who were cyanotic from respiratory distress only These infants remained in this environment continuously for periods varying from 12 hours to 7 days, usually, by that time, clinical evaluation indicating improved respiratory exchange allowed for their abrupt removal to room air without obvious distress Between Sept 1, 1953, and Jan 1, 1955, with this routine, no case of blindness was observed Thus when oxygen therapy was restricted to definite needs, retrolental fibroplasia, except in one infant who showed early retinal vascular changes which subsequently subsided, disappeared from the Premature Center The restriction of oxygen therapy to definite needs exerted no deleterious effect on the mortality rate The evidence presented supports published data indicating that the development of retrolental fibroplasia is in some way related to the prolonged use of high concentrations of oxygen

The Fight Against Infectious Hospitalism in a Children's Nursery and Hospital R M Du Pan E Novel H Fischer and M Sangue J Pediat. 49 56 66 (July) 1956 [St Louis]

The term infectious hospitalism is proposed for diseases children may contract in the course of a lengthy sojourn in a hospital environment. In an attempt to prevent such infectious hospitalism the following methods were used in the Clinique des Nourissons in Geneva Switzerland, an institution to which children with contagious diseases and nutritional difficulties premature infants, and healthy boarders were admitted By placing children with contagious diseases in an isolation ward on the ground floor, completely separated from the rest of the nursery and hospital by a door locked with a key the authors were able to prevent for a period of six years the complication of an epidemic in the rest of the nursery and hospital On the other hand, respiratory, throat, and ear infections and cases of submaxillary adenitis were not eliminated and 995 days (5.53%) of sickness from respiratory infections were observed in the children in the course of 18 000 days spent at the institution

The top floor of the institution with the ward for premature or newborn children and feeble infants of less than 3 months of age was divided into six small compartments, each one separated from the others by glass walls that did not reach the ceiling and that opened into the same corridor The air was humidified at 50% by vapor and maintained at 73 4 F (23 C) in summer by an air conditioning apparatus, it was disinfected day and night by ultraviolet rays In this ward the nurses wore masks and between each compartment they changed aprons and disinfected their hands by washing with soap and then soaking them a minute in disinfectant. The average of nasopharyngeal infections in the ward was 0 06%, with 6 days of disease out of 10,779 days spent at the clinic A study of the bactericidal effect of the ultraviolet rays revealed that they probably did not act by forming a protective screen but rather by rapidly destroying the bacteria that circulated in their field of action Since the authors have never observed the slightest noxious effect of the quartz lamps on the children admitted to this ward, they recommend ultraviolet ray disinfection of rooms for premature and feeble infants who are especially sensitive to respiratory tract infections

Gastro Enteritis in Infancy and Childhood A Review of 235 Cases H Goepito M J Australia 1 836 840 (May 19) 1956 [Sydney, Australia]

During the period from July, 1954, to July, 1955, 235 children up to the age of 12 years were admitted to the Royal Alexandra Hospital for Children in Sydney for the treatment of enteritis These 235 include those readmitted who had been discharged from the hospital but had had a relapse at home and also those admitted to hospital for some other disease and in whom diarrhea developed during their stay there The duration of hospital stay of 228 patients discharged as cured of gastroenteritis was as follows less than two weeks, 153 cases between two and four weeks, 56 cases, more than four weeks, 18 cases Although diarrhea is the most frequent initial symptom in gastroenteritis the disease sometimes presents itself with convulsions, irritability, fever, and vomiting, without diarrhea The provisional diagnosis at the time of hospitalization was gastroenteritis in 200, respiratory tract infection in 12, meningitis in 4, and other diseases in 2 of the children, the other 17 children were admitted for investigation

The disease was more frequent in males than in females (63% and 37% respectively) The fact that 75% of the children were less than 2 years old proves that gastroenteritis is most common during infancy The incidence of the disease was fairly constant throughout the year A causal agent was isolated from 14% of the patients, in 86% no pathogens could be found in the stool

The treatment of gastroenteritis consists of the following measures If intravenous fluid therapy is not considered to be necessary, a diet of 10% glucose in isotonic sodium chloride solution mixed with equal parts of whey is given on the first day This is followed by three parts of whey and one part of the infant s normal formula on the second day The strength of the feeding is increased gradually, and the realimentation, should be completed on the fifth day, when the child receives its normal feeding On the first, second and third days of the realimentation period, an electrolyte mixture is added to the feedings In the more severe cases of enteritis, in which dehydration has advanced to a degree equivalent to about at least 5% of the body weight, intravenous replacement therapy is given The majority of children (140) were not given antibiotics Ninety-five patients were given sulfadiazine, chloramphenicol, or one of the tetracycline group (Terramycin, Aureomycin, or Achromycin) or their combinations If the enteritis proved to be a Shigella infection, phthalylsulfacetamide was the drug of choice Children with Salmonella infection and enteritis of unknown cause are not given antibiotics routinely In the latter group, if diarrhea and vomiting persisted, Achromycin was used The mortality rate was 3% The autopsies in 26 fatal cases of gastroenteritis (observed between 1950 and 1955) revealed that in 15 inflammatory reactions had occurred in the intestines, in 7 there was doubtful evidence of inflammation and in 4 no histological changes were found

Immunization of Children Against Whooping Cough with Pertussis Haemagglutinin (H A P A) Field Results over Three Years D W Rankin and S Fisher M J Australia 1 873-875 (May 26) 1956 [Sydney, Australia]

Pertussis hemagglutinin aluminum phosphate adsorbed (H A P A) is a suspension of floccules of aluminum phosphate on which are adsorbed components of freshly grown virulent Hemophilus pertussis obtained by extracting bacterial bodies with molar, slightly alkaline sodium chloride solution The immunizing course for children consists of two subcutaneous injections of 0 25 ml each, spaced a month apart. Over the past three years, H A P A has been issued to medical practitioners for use in their practices and also to five municipal councils in Victoria for use in immunization campaigns The present survey was conducted along two independent lines In the first, all private doctors who had received 5 ml or more of H A P A were sent circulars and their opinions were sought. They were asked whether they had observed children, unimmunized or immunized with H A. P A, who had been exposed to contact with clinical cases of whooping cough in their homes and, if so, whether the children had contracted the disease In the other part of the survey the protective efficiency of H A P A was investigated in the five municipalities using it in immunization campaigns

The reports of practitioners concerning home contacts of children with pertussis revealed that, of 19 children immunized with H A P A and so exposed, 2 contracted pertussis, of 16 not immunized, 14 did so In the second investigation, covering four municipal districts in which H A. P A was used in immunization campaigns, 9 cases of pertussis were found in 4,920 child-years in children fully immunized with H A. P A, and 204 cases in 30,063 child-years in other children In the light of these results, H A P A was considered an efficient prophylactic in children

UROLOGY

Early Diagnosis and Treatment of Wilms's Tumor in Children G. de Faria. Rev. brasil. cir. 31:375-384 (March) 1956 (In Portuguese) [Rio de Janeiro, Brazil]

A girl, 2 years and 11 months old, in excellent general condition, was hospitalized because of hematuria. She had had attacks of recurrent microscopic and macroscopic hematuria for 11 months, during which she was given symptomatic treatment. The kidney was not palpable. Routine examinations, including retrograde pyelography, established the diagnosis of tumor of the left kidney. The treatment consisted of left nephrectomy. The microscopic study of the kidney showed embryonal carcinosarcoma (Wilms's tumor). Deep roentgen therapy was employed, starting on the third day after the operation. A daily dose of 200 r was given for 15 consecutive days, up to a total dose of 3,000 r in two weeks. Convalescence was uneventful. The patient was in excellent condition after a follow-up of one year and eight months. The three main symptoms of embryonal carcinosarcoma are a palpable renal tumor of rapid development, pain, and hematuria. As a rule, the palpable tumor appears early and hematuria appears late. In this patient, recurrent hematuria was the only symptom. The author reviews the records of four other patients with Wilms's tumor observed in the hospital.

Differential Diagnosis Between Cancer and Solitary Serous Cyst of the Kidney B. G. Clarke, W. J. Goade Jr., H. L. Rudy and L. Rockwood. J. Urol. 75:922-929 (June) 1956 [Baltimore]

The authors analyzed the roentgenograms and clinical histories of 83 patients with proved diagnoses of renal cyst or cancer to see if they could find any satisfactory criteria for differential diagnosis. They considered the reasons, other than diagnostic, for which operative exploration and excision may be justified when a renal mass is thought to be a cyst rather than a tumor.

No absolute pyelographic or aortographic criteria for differential diagnosis could be found in a study of the records and x-rays of 36 patients with proved renal cell carcinoma and of 47 with solitary serous cysts of the kidney. A diagnosis of cancer is favored by (1) a history of pain, hematuria, and fever, (2) the finding of anemia or a palpable mass, or (3) radiographic observations of intrarenal calcification, apparent calyceal amputation, or obliteration of the psoas outline. Patients with a renal mass the x-rays of which suggest cyst deserve exploration with removal of the cyst not only to clarify the diagnosis but also to prevent gradual enlargement of the mass with impairment of renal function or production of abdominal pressure symtoms, and to prevent the spontaneous rupture of the cyst or the development of tumor or infection within it. In patients who present a poor operative risk, in whom pyelograms suggest cyst rather than tumor, its spherical avascular character may be demonstrated in nephrotomograms or aortograms. Translumbar needle puncture may then be carried out with very little likelihood of encountering cancer. The cystic character of the lesion is corroborated by x-ray contrast study as well as by cytological, bacteriological, and chemical examination of the contained fluid.

Disseminated, Fatal, Postpartum Candidiasis with Renal Suppuration: Case Report J. B. Davis, J. D. Whitaker, L. K. Ding and J. H. Kiefer. J. Urol. 75:930-936 (June) 1956 [Baltimore]

The authors call attention to the increasing incidence of monilial infections (candidiasis) since the introduction of antibiotic therapy. A 29-year-old woman was hospitalized for an elective cesarean section. She had had multiple sclerosis for five years, with spastic paralysis and severe contractures of her lower extremities. After the cesarean operation, penicillin and streptomycin were given routinely for four days. Later, because of grade 3 systolic murmur and gross hematuria, she was given large doses of penicillin and streptomycin on the presumptive diagnosis of subacute bacterial endocarditis. Signs of pelvic thrombophlebitis appeared on the 10th postoperative day. Chest x-rays revealed a right lower lobe atelectasis. Terramycin was added to the therapy. Blood and urine cultures obtained at the onset of the septic process contained Candida albicans.

The septic course continued. The kidney was explored because of urographic evidence of obstruction at the ureteropelvic juncture. Subcapsular abscesses were found. The abscessed kidney was removed. Blood cultures after the nephrectomy revealed no yeast or bacteria, but cultures of the urine and tracheal aspirate showed gram-negative enterococci and C. albicans. Because of her continued septic course, the patient was given a variety of chemotherapeutic agents and antibiotics, including furadantin, polymyxin, and penicillin, with no change in her clinical status. She lapsed into a shock-like state followed by coma and died. It is believed that the patient probably had vaginal thrush (moniliasis) prior to her cesarean section and that it was introduced into the urinary tract on catheterization when the urinary retention developed. A hopeless therapeutic dilemma was created when the moniliasis became disseminated. The authors warn against the prophylactic use of antibiotics postoperatively, especially in chronically debilitated patients.

Undescended Testes: Report of 153 Cases with Evaluation of Clinical Findings, Treatment, and Results on Followup up to Thirty-Three Years J. R. Hand. J. Urol. 75:973-989 (June) 1956 [Baltimore]

One hundred fifty-three patients with undescended testes were seen in the Portland Clinic from Jan. 1, 1922, to April 1, 1955. Of the 150 analyzed, 49 had bilateral and 101 had unilateral retention, so that observations were made on a total of 199 testes. Orchiopexy was deferred until puberty unless complications demanded earlier intervention. Delayed descent occurred in 44 testes, 16 responding to hormone stimulation. Forty-two reached the scrotum at the ages of 8 to 15, one at the age of 18, and one at the age of 21. Orchiopexy was performed on 86 testes, in 59 one-stage and 27 two-stage procedures. Sixty-seven were done at puberty. Four testes were subsequently removed. Primary orchiectomy was performed in 35 patients, 3 being puberal boys and 32 adults. In 67 instances there was either absence or partial to complete loss of testicular function because of gross congenital defects (17 instances), orchiectomy, or no treatment. Abnormalities associated with retention were obesity, eunuchoidism, gynecomastia, various neuropsychiatric disorders, hernia, torsion, and malignancy. Microsections from 36 retained testes showed degeneration, which generally progressed in proportion to the length of retention. The testes of one man aged 25, however, showed preservation of germinal epithelium. Prepuberal tubules persisted in the extirpated testes of five adults. Biopsy of five testes brought down by two-stage orchiopexy 4 to 10 years previously showed persistent prepuberal tubules in three. Spermatogenesis was complete in four and arrested in one. However, the spermatogenesis was observed in only one-sixth of the tubules in the section of each testis.

The four patients with malignant degeneration of the testes have survived for from 5 to 15 years. The incidence of malignancy in 28 scrotal testes was 12.5% and in 199 retained testes about 2% or, if the 44 testes with delayed spontaneous descent are deducted, 2.76%. On follow-up, the position, size, and consistency of the testes were better after spontaneous descent than after orchiopexy. Position was better after the two stage procedure, but size and consistency were better after the one-stage procedure. Eight men fathered children after delayed spontaneous descent, and five fathered children after one-stage orchiopexy done at puberty.

The author concludes that the testes should be given an opportunity to descend spontaneously, provided there are no complications such as hernia, torsion, or arrest in an ectopic position. Hormone stimulation can be used diagnostically before puberty, and is particularly valuable in bilateral retention, its use must not be delayed beyond puberty, as established by the appearance of the first pubic hair. The hormone must be given in adequate amounts. If adequate hormone therapy does not effect descent, exploration is indicated, but must not be deferred beyond puberty. Biopsies are needed, not only at the time of orchiopexy but also, for comparison, when the testes are released after fixation to the thighs in the two-stage operation, as well as after scrotal residence following both the one-stage and two-stage procedures. There is also need for biopsies of testes that descended spontaneously after prolonged retention.

THERAPEUTICS

Clinical Experience with a New Hypotensive Drug Combination of Choline Theophyllinate and Rauwolfia Serpentina Minerva med 47 723-727 (March 14) 1956 (In Italian) [Turin, Italy]

Thirty two patients with various hypertensive conditions were treated with a combination of choline theophyllinate and Rauwolfia The hypotensive effect of the latter is lasting and side-effects are minimal Furthermore, it has a tranquilizing effect on the central nervous system Theophyllinic substances dilate the coronary arteries Choline increases the solubility of theophylline but does not increase its toxicity Each unit of the drug contained 150 mg of choline theophyllinate and 12.5 mg of Rauwolfia serpentina Patients with kidney disease were excluded The blood pressure of each patient was checked repeatedly for a few days before the therapy Function of the kidney and of the spleen were also checked The age of the patients ranged from 20 to 86 years Beginning doses were from 3 to 4 units a day until a variation in the blood pressure was obtained Then the doses were reduced to one every 12 hours Results were very good in 15 patients good in 13 and poor in 4 The blood pressure decreased within 3 to 16 days The pulse rate stayed between 70 and 80 beats per minute An increase in diuresis, at times very marked, was observed in a few patients One patient was unable to tolerate the drug, in another it caused nausea, and in a third it caused some drowsiness The hypotensive effect of the drug was always preceded by a general feeling of well-being

Protective Action of Pantothenic Acid against Toxic Effects of Streptomycin and Dihydrostreptomycin R Ducrot, O Leau and C Cosar Antibiotics & Chemother 6 404-410 (June) 1956 [Washington, D C]

The prolonged administration of dihydrostreptomycin frequently causes an alteration in the auditory function and, consequently, some degree of deafness With streptomycin such alterations are generally less pronounced, when present, the disorders are mostly of vestibular origin Many authors have attempted to improve the tolerance to these products The authors review some of these investigations, particularly those carried out by Keller and associates with pantothenic acid They describe studies carried out by themselves on the action of pantothenic acid on the toxic effects of streptomycin and dihydrostreptomycin in mice rats and cats It was found that the two antibiotics cause ototoxic changes, which increase with time The combination of pantothenic acid with these products results in a highly significant decrease of the ototoxicity The study of the protective action of pantothenic acid against cochleovestibular disturbances caused by streptomycin or dihydrostreptomycin has made it possible for the authors to confirm the results reported by Keller and coworkers Pantothenic acid actually appeared to be effective in the prevention of auditory impairments in rats subjected to a treatment of long duration with either antibiotic It also appeared effective, although to a lesser degree in the prevention of vestibular disturbances caused by the use of streptomycin in cats This protective action has been obtained by using pantothenic acid either as sodium pantothenate or as one of its streptomycin or dihydrostreptomycin salts

A Preliminary Report on the Treatment of Amoebic Dysentery with PPA-701 A Z Shafei J Trop Med 59 95-99 (May) 1956 [London England]

Camoform, diallyl-diethyl-amino-methyl phenol dihydrochloride (PAA-701), is structurally related to amodiaquin It is a basic diphenol containing neither iodine nor arsenic The author reviews several reports on the use of this drug in the treatment of amebic dysentery and reports on his own experience with it in the treatment of 15 patients with amebic dysentery Three of these patients had acute symptoms and the other 12 had a history of recurrent dysenteric episodes When the drug was given in a dose of 1.5 gm daily for 14 days, it cured two-thirds of the patients Another course given after one week s rest raised the rate of cure to four-fifths of the patients The treatment failed in three of the patients No significant side-reactions occurred Neither the blood picture nor the functional tests of liver and kidney revealed any abnormalities

Most antibiotics act in amebic dysentery through their indirect effect on associated intestinal bacterial flora Fumagillin and a few other antibiotics, however, possess activity against Endamoeba histolytica The present study revealed that the effect of Camoform (PAA-701) is similar to that of fumagillin This suggests that the action of Camoform on intestinal amebiasis is mostly direct

Clinical Contribution to the Treatment of Heart Diseases with Cellulin Coreale F DeMatteis, G Barbano and C Barocelli Minerva med 47 889-893 (March 28) 1956 (In Italian) [Turin, Italy]

The authors studied the effects of cellulin coreale a lipid extract of myocardial tissues, on 243 patients with heart disease The patients were divided into four groups The first group consisted of 116 patients with valvular or myocardial involvement with chronic circulatory myocardial insufficiency The second group consisted of 60 patients with a similar affection but with normal circulation The third group had 47 patients with coronary artery disease and angina pectoris The fourth group had 20 patients with cardioneural affections Cellulin coreale was given to the patients of the first group before treatment with digitalis The drug had a positive effect on the diuresis and increased the effect of digitalis After the insufficiency was overcome, administration of the drug was continued for several months with intervals of 10 to 15 days after 30 injections In the second group the drug constituted the basic therapy Ten to 15 days after the first injection the patients expressed their satisfaction they did not feel tired they could take long walks, and they slept better, digested better, and urinated less than usual In the third group the drug helped in the assimilation of oxygen The patients of the fourth group received treatment for from three to four months A sense of general well-being was the main effect The drug has no side-effects and is well tolerated Objective results follow long after subjective results Quinidine is tolerated better by the myocardium when it is associated with cellulin coreale

PATHOLOGY

Atherosclerosis IV The Relation of the Composition of the Blood Lipids to Atherosclerosis in Experimental Hyperlipemia E F Hirsch and R Nailor A M A Arch Path 61 469-487 (June) 1956 [Chicago]

This study is concerned with an investigation of the lipid factor in the pathogenesis of atherosclerosis, the aim being to establish a relation between the chemical composition of experimentally produced hyperlipemias and the development of atherosclerosis The lipids of the blood are transported as particles of mixed chemical composition and emulsified in an aqueous medium containing protein and other organic and inorganic solutes There are two systems in the blood the one the emulsified lipid, the other, the aqueous, in which the lipids are suspended Each system has a solvent in which solutes are dissolved The lipids of the blood consist of three main classes (1) the neutral fats, namely, the triglycerides of the saturated and unsaturated fatty acids, (2) the phosphatides, which are related chemically to the neutral fats, and (3) the sterols, cholesterol and its esters Esterified fatty acids are integral compounds of all of these lipid fractions except the free cholesterol The amounts of the fatty acids in the various fractions of the blood lipids are significant in the evaluation of hyperlipemic disorders The emulsified lipids in the blood are like a solvent and its solutes, the chemical and physical properties of which may vary Lipids liquid at body temperature, such as olein, are solvents for those solid at this temperature In some hyperlipemias the solvent lipids are in excess in others the solutes approach the supersaturation level The hyperlipemia produced in rabbits by the supplemental feeding of cream is not associated with lipid deposits in the tissue or lining of the aorta The hyperlipemia produced in rabbits by supplemental feeding of cream containing 0.5% or 1% cholesterol is greater than when cream alone is given. The hyperlipemia produced in rabbits by the supplemental feeding of cholesterol without cream is much greater than that in both of the other groups.

Analyses of the lipid plaques in the lining of the aortas of rabbits fed cream and cholesterol and of those in the aortas of rabbits fed cholesterol demonstrate that the plaques are not pure lipids but rather mixtures, composed of neutral fats, phospholipids, cholesterol, and cholesterol esters. The total lipids in the plaques of the cholesterol-and-cream-fed rabbits were increased to 8 to 10 times the values of the total lipids (average analysis) in the serum of these animals, and in the cholesterol-fed rabbits, 14 to 16 times. The amount of increase of the separate lipid fractions in the plaques of the cholesterol-fed animals over the corresponding serum lipid fractions was practically the same, 16-fold to 19-fold, except the neutral fat, which was increased only 9-fold. These comparative analyses, demonstrating that the aortic plaques are mixtures of lipids, point to the probability that the lipids at first are deposited in the lining of the aorta in approximately the same fractional distribution as they are in the lipids of the plasma. The exception to this could be the neutral fat (solvent) fraction. The smaller increase in the amount of this fraction in comparison with the others, which are increased almost equally in the plaques, suggests that a portion of this fraction (solvent) could have been removed. If this process is in effect, lipids deposited originally in the same composition as those of the blood lose solvent (or add solute) and acquire more and more those properties that stimulate phagocytosis. The acicular slits found in atherosclerotic plaques and other tissues of the human body, clefts where crystalline cholesterol has been dissolved, lend supportive evidence for such a physical change of the lipids in the tissues. Crystals are formed in tissues according to the general principles of crystallization, namely, the supersaturation of a solvent by a crystalloid, through concentration of the solvent or the addition of the crystalline solute.

Experimental atherosclerosis resulting from the saturation of the blood lipids by cholesterol esters and cholesterol takes place in a short time in the tissues of an animal presumed to be normal. The blood lipid composition doubtless is dominant under these conditions, but tissue factors are significant in determining the sites of deposition. The differences in the proportions of the blood lipid fractions and the tissue studies in these experimentally produced hyperlipemias suggest that, when tissue lipids approach in composition the saturation of solvent by solute, such as cholesterol esters and cholesterol, whether in transport or in deposit, they become significant causal agents in initiating the evolution of atherosclerotic lesions. The structural changes of the liver and of the glomeruli in the kidneys of the cholesterol-fed rabbits are tissue effects of the lipids beyond those of simple deposition.

Hemosiderin Deposition in Early Atherosclerotic Plaques. J. C. Paterson, T. Moffatt and J. Mills. A. M. A. Arch. Path. 61:496-502 (June) 1956 [Chicago]

The "vascularization theory" attempts to explain all the changes in atherosclerosis on the basis of recurrent hemorrhage into the intima of arteries. Objections have been raised to this theory suggesting that vascularization of the intima with hemorrhage seems to be the result, not the cause, of the atherosclerotic process. Indirect evidence has now been obtained that suggests that hemorrhages into atherosclerotic plaques are extraordinarily frequent and that they occur in the earliest as well as in the later stages of the disease. The evidence has been obtained by the demonstration, not of hemorrhage proper, but of one of the sequelae of hemorrhage, hemosiderin formation, and this has been achieved by subjecting gross segments of unfixed arteries to the Prussian-blue reaction. Deposits of hemosiderin so small that they would be easily missed in thin microscopic sections become quite evident when stained in this way.

Material was obtained at autopsy from approximately 150 persons, the majority of whom were middle-aged or elderly men. In each case a 6-in. segment of the thoracic aorta, extending proximally from the celiac axis, was removed, opened anteriorly with scissors (sometimes of the iron-free type), stripped manually of its adventitia and outer media to remove those tissues that were contaminated by metallic instruments, and rinsed quickly but thoroughly in distilled water. The specimen was then exposed immediately, in an unfixed state, to a freshly prepared solution of equal parts of 10% potassium ferrocyanide (preferably ferricyanide-free) and 20% hydrochloric acid. During these maneuvers, care was taken to avoid contaminating the specimen or the solutions with metallic objects. The specimen was left in the reagent at room temperature for half an hour, rinsed quickly in distilled water, and then examined with the naked eye or with a magnifying lens. A photograph of the specimen in color was taken before exposure to the reagents and immediately afterward.

Exposure of segments of the unfixed human aorta to the Prussian-blue reaction revealed numerous deposits of iron lying exclusively within atherosclerotic plaques. The deposits are considered to be hemosiderin. They were found in the earliest lesions of the disease as well as in end-stage plaques. Microscopically, the deposits were found in close proximity to capillaries of the intimal variety. The focal nature of the deposits and their close association with capillaries suggest that they mark the spots where intimal hemorrhages have occurred fairly recently. This impression is strengthened by the results of attempts to exclude other mechanisms by which hemosiderin might have been deposited in these locations.

Biopsy Studies in Ulcerative Colitis. S. C. Truelove and W. C. D. Richards. Brit. M. J. 1:1315-1318 (June 9) 1956 [London, England]

Small biopsy specimens of the colonic mucosa from just above the rectosigmoid junction were obtained in 111 instances from 42 patients with ulcerative colitis, and the relations between the microscopic findings, the clinical state, and the sigmoidoscopic appearance in these patients were studied. Similar studies were carried out in a group of 24 patients who did not have ulcerative colitis, who apparently had a normal mucosa at sigmoidoscopy, and who served as controls. Seventy-one biopsy specimens obtained from patients with mild, moderate, or severe symptoms of ulcerative colitis, including passage of blood per rectum, diarrhea, fever, tachycardia, anemia, increased erythrocyte sedimentation rate, and loss of body weight, showed mild, moderate, or severe inflammation. Twenty-five of 40 biopsy specimens obtained from patients with ulcerative colitis in clinical remission showed inflammation. Biopsy specimens obtained from patients in the control group were normal, except for two that showed slight microscopic changes. Brief details are given concerning two patients whose colonic mucosa was studied by serial biopsy and in whom a microscopic relapse preceded the clinical relapse by several weeks.

Abnormal Epithelial Cells in Ulcerative Colitis. M. M. Boddington and S. C. Truelove. Brit. M. J. 1:1318-1321 (June 9) 1956 [London, England]

From 31 patients with ulcerative colitis and from 18 patients without ulcerative colitis or any other organic disease of the gastrointestinal tract, wipings from the colonic mucosa were obtained under direct vision through a sigmoidoscope with a special tool, which consisted of a long metal rod with a "perspex" head screwed on to it. In about two-thirds of the specimens obtained from the patients with ulcerative colitis, abnormal colonic epithelial cells were detected with the aid of Papanicolaou's technique. In their most pronounced form, the abnormal cells were much enlarged and contained large nuclei with prominent nucleoli and a disturbed chromatin pattern. These abnormal cells may be found in any patient with abnormal sigmoidoscopic findings, but are most frequent in patients with severe disease. They were commonly observed in patients in the course of their first attack of ulcerative colitis. There seem to be three possible explanations for the occurrence of these cells (1) they are to be expected whenever the colonic epithelium is provoked into vigorous regenerative action by extensive damage, from whatever cause, (2) they represent a primary epithelial disturbance in ulcerative colitis, as, for example, a maturation arrest caused by the absence of a specific factor necessary for epithelial development, and (3) they are abnormal cells secondary to severe inflammation in the colonic mucosa. The abnormal cells have many of the features of malignant cells, this is of particular interest in view of the fact that patients with ulcerative colitis have a tendency to carcinoma of the colon.

BOOK REVIEWS

Management of Strokes. By Keith W. Sheldon, M.D. [This material was published in Am. *Pract. & Digest Treat.* Oct. 1955.] Cloth. $3. Pp. 134, with 52 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Pitman Medical Publishing Co. Ltd., 39 Parker St., Kingsway, London, W.C.2, England, 1956.

The title of this small manual has been well chosen. The term "strokes" is preferred to "cerebral vascular accidents," which is confusing, especially from the medicolegal viewpoint. The book itself is somewhat pedestrian and outdated. While it gives many interesting and practical points that should be useful to general practitioners, there is a striking lack of information regarding the recent advances in the field. The author is apparently still hesitant about the extension of indications for examination of the spinal fluid. This was somewhat of an academic matter in the past, but with modern therapeutic opportunities the differential diagnosis of strokes should be improved, and the spinal tap is an important step in this direction. The risk attending the removal of 5 to 10 cc. of fluid slowly is slight, and the information gained may be highly significant. There is little emphasis on the syndromes of basilar or carotid artery occlusions that are now being more widely recognized and studied. Intermittent or small strokes, which are extremely common, are not considered in any detail. The author rightly doubts that ligation of the carotid artery is a satisfactory procedure for any more than a few cerebral vascular aneurysms. It does not usually thrombose the aneurysm. If it does, there is a grave risk of hemiplegia or other serious permanent changes. In spite of these objections, in exceptional cases, it does appear to improve the situation. There is no evidence that the author is familiar with the increased use of anticoagulants for cerebral thrombosis and embolism. He discusses some of the underlying causes of strokes, but he does not mention auricular fibrillation due to rheumatic or arteriosclerotic heart disease, very common causes of embolism that can frequently be prevented by the use of anticoagulant therapy. It is regrettable that this manual, which could have been up-to-date and helpful, fails to meet its challenge.

The Rochester Regional Hospital Council. By Leonard S. Rosenfeld, M.D., M.P.H., and Henry B. Makover, M.D. Cloth. $3.50. Pp. 204, with 1 illustration. Published for Commonwealth Fund by Harvard University Press, Cambridge 38, Mass.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, England, 1956.

The Rochester Regional Hospital Council is a group of 34 nonfederal general hospitals and 10 special hospitals in an 11-county area around Rochester, N. Y., that constitutes a unique voluntary regional cooperative organization. It was begun in 1946 under the guidance of the late Dr. Albert D. Kaiser, health officer of Rochester, with financial support by the Commonwealth Fund. The purposes of the council were to improve medical services in small suburban and rural hospitals by pooling of clinical, administrative, and technical skills, by joint operation of those institutional services that can be performed more efficiently by the group than by the individual institutions, by joint planning of hospital building and expansion, and by continuing educational programs for the physicians, nurses, technicians, and administrators. It was originally conceived as a complete regional organization with equal emphasis on medical services and on continuing education, rather than being primarily educationally oriented as had been the Bingham Associates plan between Boston and Maine. However, the reluctance of the University of Rochester School of Medicine and Dentistry to assume primary responsibility has limited the educational potential of the council so that it has been more effective in the institutional services than in the educational sphere. It thus represents a complement of the Bingham Associates program. This book is the report of a study of the council by the Columbia University Institute of Administrative Medicine made at the request of the Commonwealth Fund. It describes the history of the program, the area served, the organization of the council, and its programs of education and hospital services. Interwoven in this are evaluations of the effectiveness of the program. The study concludes that, in the face of many complex problems, the Rochester regional program is probably the broadest program of its kind in the United States and that it has made significant contributions to experience with this form of organization. "Out of this wealth of experience, potentialities can be much more clearly visualized, and obstacles and problems much more precisely measured. The experience provides a most valuable resource upon which other regional programs as well as the Rochester Regional Hospital Council can draw in future planning."

Tuberculosis in Obstetrics and Gynecology. By George Schaefer, M.D., F.A.C.S., F.I.C.S., Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical School, New York City. Cloth. $8.75. Pp. 307, with 58 illustrations. Little, Brown & Company, 34 Beacon St., Boston 6; J. & A. Churchill Ltd., 104 Gloucester Pl., Portman Sq., London, W.1, England, 1956.

Two decades have passed since the publication in English of a book on tuberculosis as it relates to obstetrics and gynecology. In this period, monumental advances in knowledge of this disease have been made, especially in methods of treatment. The busy obstetrician and gynecologist cannot read all the literature and arrive at the proper plan of management in a given patient. Only with difficulty does even the phthisiologist become conversant with all the phases of tuberculosis encountered in obstetric and gynecologic practice. The author ably presents this newer knowledge in practical and concise fashion, and his personal experience in recovering from tuberculosis has been helpful. The advent of antimicrobial and surgical therapy has brought many patients from sanatoriums, where they were previously treated, into general hospitals. Of the changes in management of the tuberculous patient, few have been so marked as those in obstetrics and gynecology. No longer is tuberculosis considered an indication for therapeutic abortion or cesarean section. The introductory chapter of this book contains a brief review of tuberculosis in general, and its treatment is presented as a background for the material subsequently covered. The final answers to many of the problems are not yet at hand. The author has kept in mind simplicity and lucidity in presenting facts. The chapters deal with the incidence of tuberculosis complicating pregnancy and childbirth, antepartum care of the tuberculous woman, management of labor, management of the puerperium, effects of pregnancy and childbirth on tuberculosis, fate of infants, extrapulmonary tuberculosis and pregnancy, therapeutic abortion, tuberculosis of the breast, pathogenesis of genital tuberculosis, and treatment of tuberculosis of the female genital tract. This valuable textbook fills a definite need.

Techniques in Blood Grouping. By Ivor Dunsford, Senior Scientific Officer, Regional Blood Transfusion Centre, Sheffield, England, and C. Christopher Bowley, M.B., B.S., M.R.C.O.G., Director, Regional Blood Transfusion Centre, Sheffield. With preface by R. R. Race, F.R.S., Director, Medical Research Council Blood Group Research Unit, London. Boards, spiral binding. $4.50. Pp. 250, with 27 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1955.

With the development of new methods of detecting isoantibodies that are capable of causing hemolytic transfusion reactions or of causing the development of erythroblastosis in a newborn baby, there is need for an up-to-date manual that presents the best techniques in readily accessible form to the busy blood bank technician. This book is a mine of such information, clearly and conveniently presented. Its usefulness is impaired, however, by its reiteration of the misinformation and misconceptions that have marred blood group literature in recent years. On page 6, there is a good discussion of the difference between an agglutinogen and a blood factor, but this seems to be forgotten in the remainder of the book, since the authors adhere to the simple but incorrect concept of a one-to-one correspondence between antigen and antibody. The C-D-E notations for the Rh-Hr types and their attendant paradoxes are the natural

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

sequel of the fallacious premise adopted by the authors Some of the resulting serious errors in the manual are as follows On page 4, in figure 1, antigens and blood factors are confused so that, for example, under the heading "genes or antigens discovered" are listed O, O^c, and H Under the Rh types, little d is significantly listed as a gene postulated and not as one discovered, yet the symbol for little d is included in the C-D-E notations used in the book In figure 3, "natural" and "immune" antibodies are erroneously equated with "bivalent" and "univalent' antibodies respectively Throughout the book the Rh-Hr types are given in terms of the C-D-E symbols as genotypes rather the phenotypes On page 84, in the recommended outline of a course of lectures on blood banking, one of the lectures recommended deals with "The heredity of the blood group systems—the Fisher theory", but there is no mention of the theory of multiple allelic genes even though it has been amply demonstrated that Fisher's cross-over hypothesis is incorrect, while all the available evidence supports the theory of multiple alleles And on page 172, serums cross reacting with types Rh_1 and Rh^w_1 *are designated* anti-$C+C^w$ even though such serums are known to contain a single cross reacting antibody and not two separable antibodies like anti-Rh_0 (anti-C+D) These errors destroy the usefulness of the volume

New and Nonofficial Remedies Containing Descriptions of Drugs Evaluated by the Council on Pharmacy and Chemistry of the American Medical Association, 1956 Annual publication issued under direction and supervision of Council Cloth $3 35 Pp 540 J B Lippincott Company 227-231 S Sixth St, Philadelphia 5, 2083 Guy St, Montreal Canada 1956

This edition reflects the new program of the Council on Pharmacy and Chemistry, which involves expansion of evaluation of drugs, replacing the former procedure of accepting individual formulations of manufacturers for inclusion in the book All evaluated drugs are described under generic (nonproprietary) names in the form of monographs, which follow essentially the style of former editions To aid physicians and others interested, such trade names as are known to the Council appear at the end of each monograph Both generic and trade names appear in the index, which is complete and well arranged A concise statement of the principles governing the program of evaluation is included in the preface Fifty-eight new monographs have been added to this edition Among the more notable are those for alseroxylon and reserpine of the Rauwolfia group of alkaloids, chlorpromazine, fludrocortisone, prednisolone and prednisone, nystatin, and warfarin The volume is a striking illustration of the advantages offered in the Council's new program In previous editions of the book, new monographs were limited to those on established drugs, in the current and future editions information can be included concerning *all available new drugs, whether established* or unestablished Monographs on unestablished drugs are subject to revision as their status changes Publication of these changes in THE JOURNAL will make such information more readily available to the physician

Surgery of the Eye—Diseases By Alston Callahan B A M S M D Cloth $25 Pp 447, with 282 illustrations Charles C Thomas Publisher 301-327 E Lawrence Ave Springfield Ill Blackwell Scientific Publications, Ltd, 24-25 Broad St Oxford, England Ryerson Press 299 Queen St., W, Toronto, 2B Canada 1956

The preparation of a textbook on modern ophthalmic surgery requires a comprehensive knowledge of traditional surgical techniques and of the recently developed methods of preoperative and postoperative management of surgical patients That the author of this book possesses that knowledge is evident from the detailed description of operations that are commonly performed by the well-trained surgeon and from the discussions of surgical diagnosis in the light of new facilities for operation—anesthesia, antibiotics, antiseptics, tranquilizers, hospital care, and a number of factors that are now available but were unknown when most textbooks on ophthalmic surgery were written The latest developments in safety and avoidance of undesirable side-effects of all procedures are clearly described, with bibliographic references to current literature The chapters on reconstructive and plastic surgery are particularly well illustrated by drawings and photographs that provide a complete descriptive analysis of complicated operations Only a surgeon with extensive experience could accomplish so much with so few words, the book is comprehensive without being bulky The chapters on cataract surgery could have been shortened, as the description of cataract operations is repetitious, but the author has discussed only the operations most widely accepted, and these he has presented with accuracy and understanding He states his preferences for certain techniques and often adds 'gimmicks" of his own The anatomic arrangement of subjects is a great help in looking up complications The type used makes for easy reading The book is recommended for all ophthalmic surgeons

Fractures of the Facial Skeleton By N L Rowe F D S R C S, L R C P M R C S, and H C Killey F D S R C S, L R C P M R C S Consultants in Oral Surgery, Plastic and Maxillofacial Surgery Unit, Rooksdown House Basingstoke Hants, England With foreword by Sir Reginald Watson Jones B Sc M Ch Orth, F R C S Cloth $22 Pp 923 with 1231 illustrations Williams & Wilkins Company Mount Royal and Guilford Aves Baltimore 2 1955

This is a comprehensive, well-written, and readable textbook compiled by two British oral surgeons The first two parts deal with the classification, applied anatomy, treatment, and complications of facial fractures and are based on a survey of 500 consecutive peace-time accidents The authors direct attention to the combined surgical-dental approach to the severe maxillofacial injury Most American plastic surgeons would not concur with the authors in the management of some of their cases, particularly in the use of external head-cap and traction devices Although part 3 has sections written by two noted British plastic surgeons, Sir Harold Gillies and Mr Patrick Clarkson, their contributions are superfluous in such a book Their material on gunshot wounds of the face and late restorative plastic procedures should be relegated to a military manual or a textbook on reconstructive surgery and should not be included in the treatment of jaw fractures The book is well indexed and has an exhaustive bibliography and an abundance of descriptive illustrations It contains much information of value to the surgeon who treats maxillofacial injuries, but it emphasizes the treatment of facial injuries from the dental, rather than the *surgical, viewpoint*

The Menninger Story By Walker Winslow Cloth $5 Pp 350, with 16 illustrations Doubleday & Company, Inc Garden City, N Y, 575 Madison Ave New York 22 1956

This story of Dr C F Menninger, founder of the Menninger Clinic in Topeka, teaches that a dedicated spirit can overcome great obstacles Dr Menninger became a physician only after having given up the study of law and after a promising career as a teacher He never lost sight of his mission, which was to be prepared at all times to do his best for his patients As a result he never stopped studying, and he never stopped teaching Although the clinic he founded is now one of the outstanding psychiatric centers in the world, the patient is treated as a whole person—body, mind, and spirit, and far from just receiving the domiciliary care that was once the beginning and end of all psychiatric treatment, the patient at the Menninger Clinic is expected to get well and usually does The story is interestingly told, with a wealth of intimate detail It is written for physicians and laymen alike and will be an inspiration to some students of medicine A collection of photographs is inserted in the center of the book and adds to the interest On page 89 placenta previa' is misspelled in two places The book has an index

Therapeutic Use of Artificial Radioisotopes Edited by Paul F Hahn Ph D Cloth $10 Pp 414, with illustrations John Wiley & Sons Inc, 440 Fourth Ave New York 16 Chapman & Hall Ltd 37-39 Essex St Strand London W C 2, England 1956

Six general introductory chapters summarize the physics and biology *of the* radioactive isotopes now used in therapy Of these, the fifth, on the production and handling of these extraordinary materials, is especially necessary reading for the physician Subsequent chapters deal with various modes of administration (for instance, the intracavitary use of radioactive colloids), with particular isotopes (teletherapy with cobalt=60), and with particular diseases (leukemia, prostatic carcinoma, and thyrotoxicosis) The information is copious, concrete, and clearly stated, and the editing has been so skillful that the reader is quite unaware of the multiple authorship The illustrations and index are excellent The book is highly recommended

QUERIES AND MINOR NOTES

HYPOPARATHYROIDISM

To the Editor —*What is the medical treatment of choice for hypoparathyroidism following inadvertent removal of the parathyroids in a patient at the time of thyroidectomy? Is it feasible to transplant normal parathyroids into such an individual?*

M D, Florida

Answer.—Hypoparathyroidism or parathyroid tetany is treated by the combination of calcium lactate and dihydrotachysterol or vitamin D given by mouth Initially 40 to 60 gm of calcium lactate together with two to three capsules of dihydrotachysterol or 50,000 units of vitamin D, is given each day After three to four days, when the level of calcium has reached the normal range the amounts of the drugs are reduced until the proper dosage is found that will maintain the level of calcium between 9 and 10 mg per 100 cc of serum The usual maintenance dose of calcium lactate is about 36 gm per day, and one capsule of dihydrotachysterol or 50 000 units of vitamin D is required each day or every other day Frequent determinations of the concentration of calcium in the serum are necessary until the proper amounts of the drugs have been established After this time, an occasional determination is necessary to be certain that the level of calcium remains satisfactory Serious complications may develop if the level of calcium is permitted to remain either above or below the normal range The daily dose of calcium lactate should be dissolved in 1.5 to 2 pt. of boiling water The solution is allowed to cool and is taken throughout the day Acute symptoms of tetany may be controlled by giving one or two ampuls of 10% calcium gluconate slowly and intravenously Tetany that develops after thyroidectomy may be temporary Treatment should be discontinued gradually after four to six weeks to determine whether further treatment will be required If symptoms recur treatment is of course reinstituted Another attempt to discontinue treatment should be made in perhaps four months If treatment is still necessary after this interval, the tetany probably is permanent and treatment must be continued for the remainder of the patient's life It is not feasible to transplant parathyroid tissue from one person to another unless donor and recipient are identical twins however one apparently successful case has been reported (Sterling J.A and Goldsmith R Transplantation of Homologous Thyroid and Parathyroid Glands (Case Report) in Transactions of the American Goiter Association Springfield Ill. Charles C Thomas, Publisher, 1954, pp 477-483)

FURUNCULOSIS

To the Editor —*What is the accepted treatment of a furuncle and furunculosis? At the student infirmary at Alabama Polytechnic Institute our previous treatment has been the intramuscular administration of 400 000 to 600 000 units of crystalline procaine penicillin G (Duracillin) as indicated along with the other measures used in these cases The reason I want this information is to try to avoid a severe reaction to penicillin*

Morgan W Brown M D Auburn Ala

Answer —If it is necessary or desirable to avoid the use of penicillin one may employ orally given broad-spectrum antibiotic agents such as tetracycline or oxytetracycline in divided doses from 0.5 gm to 1 0 gm per day until the infection subsides If the individual lesion is fluctuant, drainage should be established by incision in the dependent portion if the lesion is not ready to be incised, hot compresses should be applied several times a day When drainage is completed, the topical application of an antibiotic ointment, preferably one containing bacitracin, which is not often used systemically, is of value Superficial x-ray therapy administered by one skilled in this type of treatment often hastens involution of furuncles Routine urinalysis should be done in these patients to rule out diabetes Reduction of carbohydrate intake is sometimes of value in the chronic recurrent cases

SMALLPOX VACCINATION

To the Editor —*A 17-year-old girl is required to have smallpox vaccination as part of her college preparation She gives a history of having been vaccinated in infancy, with a subsequent illness whose description is suggestive of postvaccinal encephalitis She has not since been vaccinated and I would like to know whether it is advisable to attempt it now and if any precautions should be taken She is in excellent health except for a pollen hayfever*

S Theodore Sussman, M D, New Rochelle, N Y

Answer —First it would be advisable to determine if the girl has a characteristic vaccination scar If a primary vaccination was successful a secondary vaccination at this time would in all likelihood be of the accelerated type, provided the inoculation was effective Therefore there should be very little local or systemic reaction. Many years ago there was what might be called an outbreak" of encephalitis following smallpox vaccination in Denmark and Sweden There were also some similar cases in England At the same time the Ministry of Health in England advised against doing any primary vaccination in adults except in cases of emergency, i.e, exposure to smallpox In this country postvaccinal encephalitis due to smallpox vaccine has been very uncommon. Some years ago smallpox vaccine produced in chick embryo was available One of the objections to its use was the possibility of severe reactions in allergic individuals who were sensitive to egg For the girl mentioned inoculation with calf vaccine by the multiple-pressure (not puncture) method should be a safe procedure

TARRY STOOLS, VOMITUS, AND BLOOD GROUPS

To the Editor —*Can a person's blood group be identified from his tarry stools or from his bloody vomitus when the blood has already turned black due to the action of the gastric juice (coffee-ground emesis, chocolate colored vomitus)? If one cannot identify the blood group, can he say at least whether the blood in the vomitus or in the stool is of human or animal origin? Can one perform these tests in any laboratory, or do the specimens have to be sent to a special laboratory?*

M D, Ohio

Answer —Once blood has been hemolyzed it is no longer possible to prepare blood suspensions that can be typed directly for any of the known blood factors Nevertheless, under favorable conditions it may still be possible to determine the A-B-O groups This depends on the fact that in about 80% of all Caucasoids the A-B-O blood group substances are present in water-soluble form in high concentration in such secretions as saliva and gastric juice Therefore, if vomitus whether or not it contains blood, is brought to a neutral pH and then titrated the ability of such material to inhibit the agglutination of group A cells by anti-A serum, and group B cells by anti-B serum can readily be determined For example, if high saline dilutions of gastric juice inhibit the reaction of anti-A serum but not anti-B serum then the gastric juice must have come from a group A individual On the other hand, if anti-B serum is inhibited but not anti-A the individual in question belongs to group B If both antiserums are inhibited the group is AB, but one must be careful to exclude the possibility of nonspecific inhibition Failure of the juice to inhibit either anti-A or anti-B indicates that the individual is either group O or a nonsecretor The distinction between group O

The answers here published have been prepared by competent authorities They do not, however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address but these will be omitted on request.

and nonsecretor can readily be made with the aid of extracts of seeds such as Ulex europea that have the property of strongly clumping group O cells The clumping of group O cells by these seed extracts is inhibited by high dilutions of gastric juice or saliva from secretors of any of the four blood groups, but not by nonsecretors The same principles apply to the examination of stools, whether or not they contain blood However, one must bear in mind that stool consists largely of bacteria and undigested food Since the soluble blood group substances are heat-stabile mucopolysaccharides, the stools may be extracted with boiling water and the extract clarified by filtration This may then be evaporated to dryness in a steam bath and the residue taken up in a small amount of saline solution The extract obtained is then tested by the inhibition technique already described for its ability to inhibit anti-A, anti-B, and anti-O (Ulex europea) serums Such examinations on stools must be interpreted with caution, because many bacterial species produce capsular polysaccharides having A-like and B-like activity, while other bacteria produce enzymes that destroy the blood group substances Considerable experience would be required to obtain reliable results in these examinations, especially since there is no precedent for such tests, so that the work would be almost entirely of an experimental nature Therefore, it probably would be best to submit such problems to individuals specializing in the blood-grouping field To establish the human origin of such material would depend on the use of the precipitin test It seems doubtful that bloody vomitus or tarry stools would give reliable reactions in this test, which depends on the presence of undenatured serum proteins of human origin Moreover, since the occasion to perform such tests has apparently not arisen in the past, there are no published reports on this specific problem

ROUTINE BLEEDING AND CLOTTING TIME

To the Editor —*I would be interested to know the feelings of various authorities on the preoperative precautions to take regarding the ruling out of any potential bleeding or clotting difficulty It is my feeling as a hematologist that the routine bleeding and clotting time perfunctorily performed yield little information of value and that a few well-chosen questions and evaluation of a peripheral smear would really be more valuable It is not clear to me what position, if any, has been taken on this question, particularly with reference to the satisfying of any legal requirements*

Frank E Trobaugh Jr, M D, Chicago

This inquiry was referred to three consultants, whose respective replies follow —Ed

Answer —The question is an extremely pertinent and timely one but very difficult to answer Even though the routine bleeding and clotting time perfunctorily performed yield little information of value, one must recognize that to rule out any potential disturbances in the clotting or bleeding mechanism would involve entirely too much work for preoperative routine As far as the platelet count is concerned, the technician can, with practice, estimate it from a stained blood smear with sufficient accuracy to divide all patients into those with low, normal, and high counts This should be part of all blood smear studies Concerning the bleeding time, if carried out with rigidly controlled technique, it does yield valuable information As far as the coagulation time is concerned, undoubtedly a minor clotting defect would not be picked up even by an accurately carried out test of venous clotting time It becomes therefore imperative, by thorough questioning of the patient, to elicit any evidence of previous bleeding tendencies In both children and adults, when any doubt exists, it seems reasonable to use Lee and White's three-tube method of determining coagulation time at 37 C, using preferably siliconized containers This is considered essential as a preoperative procedure only when thorough questioning elicits any history of a previous bleeding tendency In a child, however, where bleeding tendencies might not as yet have manifested themselves and where obtaining a good venous blood sample, i e, without stasis, is not always a simple task, a screening test such as afforded by determining the coagulation time with two capillary tubes, with blood obtained with a deep skin puncture, appears acceptable as a compromise This would pick up severe coagulation defects, although it would miss the minor ones So far as known, this procedure, faulty as it is, satisfies legal requirements

Answer —The inquirer has virtually answered his own question A carefully taken history of bleeding episodes and a physical examination for purpuric manifestations, together with an examination of the peripheral smear, would be highly valuable as a preoperative measure in the estimation of potential bleeding It is true, however, that a carefully performed test of bleeding time and estimation of prothrombin concentration and clotting time would add substantially to the search for possible bleeding difficulties

Answer —The law requires that a physician who undertakes to diagnose or to treat a patient must possess the skill and exercise the care commonly possessed and exercised by other reputable physicians in the locality If he holds himself out as a specialist, he must meet the standards of practice of other specialists in the designated field of practice Thus, the answer to your question from the legal standpoint is that a physician must meet the requirements of good medical practice in any service he furnishes a patient These requirements are based on what other reputable physicians in the community, or in similar communities, would or would not do in the care of similar cases

DOUCHES

To the Editor —*In my search for a simple astringent douche I find aluminum acetate solution (Burow's solution) effective I use it diluted 20 to 1 Is there any better preparation for a simple, clear, not infected oversecretion of mucus?*

M D, California

This inquiry was referred to two consultants, whose respective replies follow —Ed

Answer —While Burow's solution in the dose mentioned is probably not toxic, why use any astringent douche for a "simple, clear, not infected oversecretion of mucus?" Incidentally, this consultant has never heard or seen any recommendation of Burow's solution for purposes of douching If there is really an oversecretion, without infection, it may be the hypersecretion that is so often noted at the ovulation phase, this needing no douching at all If there is really sufficient oversecretion to constitute an annoying problem, some simple douche such as bicarbonate of soda, boric acid or saline solution would seem more sensible than anything like Burow's solution One of the most popular, safest, and most pleasant douching solutions is that of ordinary household vinegar (either white or brown) in a proportion of about 4 tablespoonfuls to 2 qts of very warm water

Answer —Douches are unphysiological and often harmful in that they do no physiological good and often cause the conditions for which they are prescribed The vagina is a closed organ with muscular supports and during most of the day drains by gravity The normal vaginal secretion contains cellular debris, mucus, and bacteria, namely, the Doderlein bacillus Douches, medicaments, infections, and infestations disturb this normal flora Cyclic changes occur at or near ovulation The mucus becomes clear and watery, during the remainder of the cycle it is more tenacious All of this is normal Occasionally, a woman will have an increase in mucus secretion because of unrecognized or nonadmitted emotional sexual stimulation

If discharge is present, treatment should be aimed at clearing up such conditions as cervical disease and vaginal infestations Douches tend to increase mucus secretion, especially astringent douches, because the moment the vagina becomes dry more mucus is poured out Irritating medicaments do the same In occasional cases, slight urinary incontinence causes irritation and added mucus secretion Partial cervical amputations are occasionally indicated, and plastic operations sometimes solve the problem, but, in this consultant's experience, douches, never Twice daily cleansing of the vulva usually is all that is necessary Many women emotionally consider douching essential to cleanliness A little training is all that is necessary to correct this belief in most women

TREATMENT OF TRICHURIASIS

To THE EDITOR —*What is the treatment for infection with Trichuris trichiura?* M D, Missouri

ANSWER —Trichuris trichiura, called Trichocephalus trichiurus by Dr E C Faust and commonly known as the whipworm is found frequently in southern United States and since 1950 it is being found with increasing frequency in northern areas Whipworms are resistant to treatment. They inhabit the large intestine, chiefly the cecum where covered by mucus and slimy feces, they take refuge and find protection Also, they are firmly anchored in the mucosa by the interlacing attachment of their anterior attenuated portions Often anthelmintics given by mouth do not reach the large intestine in concentrations sufficient to kill or dislodge the worms The first step in treatment is to dissolve the mucus and slime that cover the worms This is accomplished by administering a saline cathartic the night before, preferably sodium sulfate (Glauber s salt), 15 gm (0.5 oz) in a full glass of water for adults The following morning on an empty stomach the patient should be given 3 cc. of a mixture consisting of 0 3 cc of oil of chenopodium and 2 7 cc of tetrachloroethylene in soft gelatin capsules No food or carbonated drinks should be given Two hours later the saline purge is repeated Food may be taken after successful evacuation of the intestines after the second cathartic The stools should be examined to see if adult worms have been dislodged Adult worms are 1 or 2 in in length The longer anterior portion is attenuated and coiled while the posterior two-fifths is larger in diameter and fleshy

If the infestation resists oral treatment high retention enemas may prove more satisfactory The night before administer a saline purge In the morning first give a cleansing tap water or normal saline enema followed by a high retention enema Prepare 600 cc. of a 10% solution of mucilage of acacia to which is added 2 gm of crystalline hexylresorcinol and 60 gm of fine kaolin When the enema is given the foot of the bed should be elevated to assist the fluid in reaching the cecum It should be retained for at least half an hour A mild sedative sometimes is beneficial It may be necessary to repeat the enema four or five times on alternate days In Central and South America the drug of choice is leche de higuerón, which has a proteolytic enzyme action This drug is not available in the United States

Another method that gives fair results is as follows 1 Give saline purge the night before 2. Give crystalline hexylresorcinol in the morning on an empty stomach (adults, five 0.2-gm capsules, children, 0 1 gm per year of age up to 10 years) 3 Two hours later repeat saline purge 4 In the evening of the same day give a cleansing soapsuds enema followed by a retention enema of 500 to 1,000 cc. of a 1 to 1,000 solution of crystalline hexylresorcinol 5 Three days later give another retention enema Often it is necessary to repeat the treatment once or twice These worms live for many years, so it is worthwhile to try to get rid of them

COMPLICATIONS IN DIABETICS

To THE EDITOR —*The standards used for the treatment of diabetics seem to be contradictory Strict control with carefully calculated diets along with administration of insulin in sufficient amounts to keep the blood sugar level within normal limits and the urine sugar-free is advocated by some while Edward Tolstoi, in a monograph published in 1953, states that hyperglycemia and glycosuria can be disregarded providing the patient feels well and maintains his weight and there is no ketonuria What causes the complications that shorten the lives of diabetics? Are they the result of a lessened supply of insulin, or is the high blood sugar level at fault?*

H O Closson, M D, Glen Burnie Md

ANSWER —The cause of the vascular complications in diabetes is not known with certainty The best evidence indicates that good control of glycosuria and hyperglycemia prevents, minimizes, or postpones vascular disease, while poor control aggravates and accelerates it For example Root, Pote, and Frehner (*A. M A. Arch Int Med* 94 931 [Dec.] 1954), in a study of retinopathy in 189 patients with diabetes of 20 to 29 years duration, found that retinopathy was absent or minimal in 76% of patients whose diabetes had been well controlled as compared with 33% of patients with poorly controlled diabetes On the other hand, retinopathy was moderate, marked, or extreme in 24% of patients whose condition was well controlled and in 67% of patients whose condition was poorly controlled These are the most comprehensive and carefully gathered data available They clearly show the importance of minimizing glycosuria in the prevention of diabetic retinal disease and comparable data lead to similar conclusions insofar as renal disease and atherosclerosis are concerned. At the same time the figures just cited indicate that good control does not necessarily guarantee immunity from vascular disease since 24% of the patients in this category have well-marked retinopathy nor apparently, does poor control invariably lead to vascular degeneration since 33% of the patients in this category had no or slight, retinopathy It is exceptions of this sort that have led to the hypothesis that the tendency to the development of vascular disease may be a hereditary or constitutional matter passed on from one generation to another in much the same way that diabetes itself is genetically transmitted This theory can be neither proved nor disproved at present.

The chemical factor in uncontrolled diabetes that is responsible for the characteristic vascular lesions has not been identified There is a good deal of evidence that elevated levels of serum lipids both in nondiabetics and in diabetics have something to do with arteriosclerosis Hyperlipemia in the treated diabetic however is neither so common nor so marked as has been popularly supposed and it is doubtful that this is the prime cause of arteriosclerosis in this disease and even more doubtful that it is concerned with the renal and retinal lesions Some patients with the latter types of lesions are reported to have increased concentrations of serum mucopolysaccharides, but work in this field is not sufficiently advanced to justify conclusions The subject as a whole has been recently reviewed by Ricketts (*Am J Med* 19 933 [Dec] 1955)

INHERITANCE OF SKIN COLOR

To THE EDITOR —*My brother-in law and his wife both of whom are white had a child who is definitely colored about three and a half years ago In this case neither person knows of any intermarriage of white and colored as far back as they can trace My husband and I have two living children and lost one baby at birth All three of our children have been perfectly normal My brother-in-law and his wife also have had three children, two who are perfectly normal and the one to whom I referred above It appeared in their second child We hesitate to have more children until we know on which side the colored blood exists Also even though the appearance of the colored strain has not shown in our children if it does happen to be on my husband s side could it appear in my children s children?* Maryland

This inquiry was referred to two consultants whose respective replies follow —ED

ANSWER —It is difficult to give a straightforward answer to the query presented because the facts are uncertain from the information provided For example there is a semantic problem since no two persons would interpret "definitely colored" in the same way The expression "definitely colored" represents a subjective emotional opinion rather than an objective scientific finding Physical differences between Caucasoids and Negroids depend on the combined action of numerous genes Mulattoes have a physical appearance intermediate between their Negroid and Caucasoid father and mother because they inherit half of the genes from one parent and half from the other A quadroon results when a mulatto crosses with a white person, because one-fourth of his genes will be derived from the Negroid grandparent and three-fourths from the other three Caucasoid grandparents An octoroon results when a quadroon crosses with a Caucasoid because one great-grandparent is Negroid while the remaining seven great-grandparents are Caucasoids Quadroons and octoroons may differ widely in appearance depending on which genes they inherit from the Negroid and Caucasoid ancestors Therefore, it is difficult to state how many Negroid ancestors an individual must have in order that the presence of Negroid characteristics may be recognizable, since, for example, a "pure" Caucasoid after exposure to the sun may look considerably darker than an octoroon

From the above consideration, it should be clear that, if one parent has no Negroid ancestors while the other parent has Negroid ancestors, none of the children will appear more Negroid than the parent with the Negroid ancestry Therefore, in the problem case discussed, one may well challenge the statement regarding the child who is said to be "definitely colored" because when two "pure" Caucasoids have a "colored' child, blood grouping tests on the child and supposed parents may prove to exclude parentage It would be advisable to consult a qualified physical anthropologist to determine whether the characteristics interpreted as evidence that the child is definitely colored" constitute a valid basis for this inference At any rate, if from the appearance of the parents it is impossible to determine whether they have any Negroid ancestry, concern regarding the appearance of Negroid characteristics in the child seems unwarranted

Answer —Detailed studies made in Bermuda on the inheritance of skin color in Negro-white crosses by Davenport led him to exclude the possibility of a "throw-back" in the children of mates that are apparently white but who have a history of remote intermixture with Negro blood He investigated this question of dark children being born to a pure-bred white married to an extracted white, the name given to a person in whom Negro blood has been diluted beyond recognition The conclusion was reached that the idea of "reversion to black" is mythical The instances in which this was reported to be true turned out to be children of persons who were light-colored but who were definitely Negroes

An analysis of the mode of inheritance of skin pigmentation indicated that black pigmentation is represented by four inheritable genetic factors and that genotypes consist of either an absence of these factors (the pure-bred white) or the presence of one, two, three, or four of the factors corresponding to various degrees of skin color It is understood that a person who is to all appearances pure white has no factor for skin pigmentation and is therefore incapable of transmitting such a factor to his progeny

DUPUYTREN'S CONTRACTURE

To the Editor —*Can a Dupuytren's contracture of the palmar fascia result from a Colles' fracture of the wrist?*

Leland G Brown, M D , Muncie, Ind

Answer —After more than a century since Dupuytren described the fascial contracture that goes under his name, we are still no closer to absolute knowledge concerning its etiology Studies from numerous sources furnish confusing and contradictory evidence Efforts to establish a relation between the repetitive trauma of manual labor have led some to favor such a factor on the assumption that the individual has a predisposition to the disease However, all such studies do not warrant this assumption Most surgeons who have had experience in the care of Dupuytren's contracture reject the chronic traumatic origin Although a few patients will give a history of some sort of injury to the palm, frequently the condition will be found to be present on the other palm as well Fractures of the upper extremity have been noted in the history of patients developing Dupuytren's contracture Kohlmayer (*Zentralb f Chir* 62 1928, 1935), in a study of 110 men with fractures of the radius, found 5 4% developed the contracture and, of 530 women with radius fractures, 0 75% developed the contracture It hardly seems justified to assume causal relationship from these figures, especially since two of the men had bilateral contractures The tendency to incriminate injury is especially great when compensation is concerned Many cases of Dupuytren's contracture are seen in which there is no history of fracture and in which their association can be ascribed to fortuitous coincidence One cannot deny that a Colles' fracture may be followed by the development of the contracture, but this is no proof of causal relationship, the contracture would have developed without the fracture Most evidence points to some other cause than trauma The facts that it occurs most often bilaterally and that, in reported series of cases, 10 to 40% of patients give a history of familial occurrence suggest strongly that there is a hereditary influence In fact, it has been traced through as many as five generations in a family and has been reported in identical twins It is not clear whether the inheritance is dominant or recessive, however, it may be sex-linked, since it is more frequent in men than in women Recent study (Gordon, S *Ann Surg* 140 683, 1954), however, seems to cast doubt on the general assumption that it is so rare in the female Its bilaterality, its occurrence in nonmanual workers as often, at least, as in manual laborers, its development in the later years of life, its infrequency despite the frequent traumas to which all hands are subject, and the occasional association of plantar fascial thickening and knuckle pads all speak against trauma as a cause and emphasize that, while it may not be known as to what causes Dupuytren's contracture, it is pretty well known what does not cause it

TREATMENT OF INTERSTITIAL KERATITIS

To the Editor —*Please give the latest source for proper treatment of a case of interstitial keratitis in congenital syphilis (lues)*

M D , Oklahoma

Answer —North (*Brit M J* 2 7, 1954) describes very gratifying results that follow the treatment of interstitial keratitis with cortisone Twenty patients with this condition have been treated and observed for at least a year, and eight cases are reported It is stressed that antisyphilitic treatment seems to have little effect on the course of this condition Treatment with cortisone brings about a rapid relief of symptoms and the disappearance of the signs of inflammation, thereby reducing the possible amount of corneal scarring Whether cortisone cuts short the duration of the disease is not established The disease can recur and must be treated with further courses of cortisone therapy Although antisyphilitic treatment barely affects the course of the condition, such treatment still has to be carried out in conjunction with cortisone therapy, the patients here in question received something like 8 million units of penicillin and some had more Patients with severe cases were given cortisone by subconjunctival injection in doses of 10 mg every third day, and this was continued until the eye was obviously settling Relief appeared quickly, and, as it did so, the amount of treatment was reduced After about the third subconjunctival injection, eyedrops of 5 mg per milliliter were instilled hourly by day and reduced as the condition improved It would appear that, if treatment can be started before corneal infiltration obscures the vision, the eyesight is not ultimately impaired

Klauder and Meyer (*A M A Arch Ophth* 51 432 [April] 1954) treated 36 patients with acute interstitial keratitis by various means Corticotropin given to three patients in dose ranges of 450 to 670 mg over a period of 9 to 15 days was without definite benefit Cortisone injected subconjunctivally in doses of 1 3 mg daily for three days with or without repetition for another three days was also without effect in six patients Application of cortisone drops containing 25 mg per milliliter instilled every hour during the day and every two hours during the night in 13 patients led to dramatic clearing of the cornea and subsidence of the inflammation However, the incidence of recurrence was "much higher" in cortisone-treated patients, hence this method of treatment is inadvisable The rationale of thyroid therapy is based on the low metabolic rate, the low protein-bound iodine in the serum, and the low iodine uptake found in at least several of the present cases and in others reported in the literature Administration of 120 to 200 mg of thyroid daily was found to be beneficial when combined with fever therapy Previously it has been reported that there is less acne in patients with interstitial keratitis than in normal persons On this basis three patients, all females, were treated with weekly injections of 25 mg of testosterone cyclopentylpropionate The effects were of equivocal benefit Fever was induced from 4 to 14 times by injection of colon bacillus vaccine (Pyrifer) This, combined with the metal chemotherapy and penicillin therapy usual for syphilis, gave the best results

Oksala (*Acta ophth* 33 309, 1955) examined 35 patients with syphilitic interstitial keratitis at least one year after the termination of the active stage of the disease Ten had been given an average dose of 6 million units of procaine penicillin Fourteen had been given penicillin (average, 9 million units) associated with malaria (average, 10 chills) In addition to this combined treatment, cortisone was administered topically to the remaining 11 patients He summarizes his observations as follows There is as yet no specific remedy for syphilitic interstitial keratitis Penicillin has no effect on the course of the disease Fever therapy reduces the subjective and objective symptoms of the disease, as it does in other intraocular inflammations and is, therefore, of use in the active stage of the disease Oksala believes that it is premature to evaluate fully the usefulness of corticotropin and cortisone His experience indicates that, although a rapid improvement is often seen through administration of hormones, the improvement is not very lasting The experiences of Vannas (in discussion on Oksala) with topically administered cortisone at the Helsinki University clinic indicate rather promising results in interstitial keratitis but Vannas warns that maintenance doses should not be discontinued too early On the basis of five patients treated with cortisone given locally plus penicillin and fever therapy, Segal and Zylo-Filipowicz (*Klin Oczna* 24 133, 1954) conclude that cortisone has only a symptomatic benefit The signs and symptoms returned when administration of cortisone was discontinued

PENICILLIN FOR SALPINGITIS

To THE EDITOR —*What is the proper dosage of penicillin for each of the following conditions, assuming one is dealing with penicillin-sensitive bacteria (1) acute streptococcic salpingitis, (2) chronic pelvic inflammatory disease due to streptococcic salpingitis, and (3) acute gonorrheal salpingitis?*

Paul Russell, M D , Inglewood, Calif

ANSWER —In using penicillin for the treatment of acute streptococcic salpingitis in an adult female, a single injection of 900,000 units of benzathine penicillin would probably be adequate. When faced with chronic pelvic inflammatory disease due to a streptococcic infection, the dose of benzathine penicillin should be increased to 1,200,000 units given intramuscularly in one injection A single dose of 600,000 units of benzathine penicillin should prove effective in the treatment of acute gonorrheal salpingitis

ENLARGED BREASTS AT AGE FOUR

To THE EDITOR —*A girl 4 years old was born prematurely with slightly enlarged breasts She has always been healthy but her breasts have remained slightly enlarged She pulls on her breasts from time to time and sits on the floor watching television and palpates or massages her vulva and at times does this when bathing What can be done about this? Would hormones do any good, particularly stilbestrol?*

M D , Texas

This inquiry was referred to two consultants, whose respective replies follow —ED

ANSWER.—The habit described in regard to massaging the vulva is not rare in young children In infants it is quite common Among the latter itching may be caused by pinworms which could also be responsible in older girls A vulvovaginitis sometimes accounts for the habit. If there is no endocrinological disturbance it is doubtful that hormones would be of value Benzedrine has been recommended for trial (Bakwin H *J Pediat* 40 675 [May] 1952) to lessen sex tension This drug should be administered in the morning if the habit occurs in the daytime but if the habit is at night a mild sedative should be given at bedtime It would seem that the clothing could be so arranged as to prevent the child s hands from contacting the breasts Punishment of any kind is considered ill advised Eventually the child should abandon its bad habits As a rule there is no serious injury to the general health in such cases It is not likely that stilbestrol would be of value

ANSWER.—Breast engorgement with areolar and glandular development is physiological in the normal newborn infant but is not seen in the premature infant and cannot be explained without more information If this child is normal in all other respects, the present prominence of the breasts must be due either to isolated precocious breast development or more likely to the presence of normal adipose tissue Palpable glandular tissue is found in precocious breast development. No treatment is indicated Hormone therapy should not be given In either case the physical appearance is unalterable unless general obesity exists It must be accepted as such until it becomes desirable at an older age A minimal amount of masturbation is normal at this age If the amount of masturbation is really excessive and not parental exaggeration of the normal, some aberration in the normal parent-child relationship must exist. The problem of masturbation should be resolved with proper counseling The parents should be reassured and advised to ignore the masturbation The child should be provided with more activities to use her hands elsewhere Any other disturbances in the parent-child relationship should be corrected as indicated

ADMINISTRATION OF THYROID EXTRACT

To THE EDITOR —*Many patients whose basal metabolic values are in the low-normal or moderately low range perhaps −10 to −15 or −20 are given thyroid extract for a variety of reasons, such as chronic fatigue menstrual irregularities, moderate hypotension or obesity If these values are not actually due to low thyroid function but to a general hypometabolism does the prescribing of thyroid to euthyroid or mildly hypothyroid patients depress thyroid function in the same manner that prescribing cortisone for long periods may depress adrenal cortical function? After thyroid medication is discontinued would one expect to obtain a lower basal metabolic rate, protein-bound iodine level, or radioactive iodine uptake than before the thyroid was taken?*

Benjamin Trachtman, M D , Brooklyn N Y

ANSWER —The administration of desiccated thyroid to euthyroid subjects does depress thyroid gland function, presumably by inhibition of pituitary secretion of thyrotropin. Oral doses of 1 or 2 grains (0 6 or 0 12 gm) of desiccated thyroid to euthyroid patients usually do not affect the protein-bound iodine level or basal metabolic rate However, when 3 grains (0 2 gm) are administered to euthyroid patients for a month there is an inconstant initial rise in basal metabolic rate and protein-bound iodine followed by a gradual return to pretreatment levels despite continued administration of thyroid With larger doses the rise in protein bound iodine level and basal metabolic rate occurs regularly and the gradual decline that occurs with continued administration does not reach pretreatment levels As little as 1 grain of desiccated thyroid for one week will depress thyroid gland radioactive iodine (I^{131}) uptake in about one-third of euthyroid subjects Ingestion of 2 grains daily will regularly depress I^{131} uptake When desiccated thyroid is omitted there is a rapid drop in the protein-bound iodine and basal metabolic rate to levels below initial values, and in some patients mild symptoms of hypothyroidism appear The protein-bound iodine reaches its lowest level about one to four weeks after omission of thyroid and the basal metabolic rate a little later Thereafter there is a gradual return to normal values The I^{131} uptake, depressed during thyroid administration, returns to normal in most cases within two weeks Occasionally as long as 11 weeks may elapse before return to normal. A few instances have been reported in which the I^{131} uptake rebounds almost to thyrotoxic levels before return to control values

PENETRATION OF INFRARED RAYS

To THE EDITOR —*Could an infrared ray light bulb gradually bake the muscles in the hips of a man 73 years old to where he cannot use them enough to even balance himself on crutches to walk alone? He had a bad case of sciatica, for which he used the heat lamp every night and almost all night through on his hips and baked them in the daytime one to three times per day He also rubbed the hips with liniment He got so much worse he had to go to the hospital His hips appeared to be burned as they were red and bluish spotted Those muscles seem damaged but whether they can be brought back to normal use or not I do not know*

A T Hutto M D , Pelion S C

ANSWER.—It is first assumed that the device used on this patient was an electrically powered bulb designed to deliver infrared rays for therapeutic purposes Incandescent sources of infrared energy for therapy usually emit in wave lengths ranging in the infrared from 7,600 to 15,000 Angstrom units The actual depth of penetration of the infrared rays themselves ranges from 1 mm to 1 cm at the most Although small amounts of radiation may penetrate to still greater depths, this penetration range represents limits in depth at which biological action may be expected if any is to occur The actual penetration of biologically effective infrared rays themselves into the muscles and especially the deeper muscles is negligible It is therefore doubted that the infrared rays themselves have caused the difficulties found in this patient The heating of the deeper structures when infrared rays are applied is due to the carrying of the heat by way of an intact blood supply from the superficial tissues to the deeper structures It is expected that the rather prolonged use of the infrared lamp mentioned by the patient together with counterirritant drugs has resulted not in the relief of pain but possibly in the increase of pain, which resulted in still further decreasing the subject's activity The role then of prolonged inactivity, prolonged heating, prolonged use of counterirritants applied to the skin, or the basic pathology causing the signs and symptoms in the first place, together with the patient's age, will be extremely difficult to evaluate in determining which are the major factors in bringing about the patient's present condition

SURGERY OF THE PAROTID GLAND

To the Editor —*In the dissection of tumors of the parotid gland, we depend somewhat on twitching of the facial muscles in identifying tissues as we approach the facial nerve trunk and its branches In our anesthetics these days we use Anectine or other curare-like drugs as a muscle relaxant in addition to general anesthetic agents What is the opinion of other surgeons and anesthesiologists on the effect of these curare-like drugs on this source of nerve identification to the surgeon in parotid surgery?*

M D, Pennsylvania

Answer —Unquestionably the use of muscle relaxants will take away the safeguard referred to, namely, twitching of facial muscles when the facial nerve or its branches are disturbed by the surgeon This consultant was not aware that observation of muscle twitches was a usual method for keeping out of trouble Where such reliance is the custom, it seems essential that the surgeons avoid the use of muscle relaxants

CROUP, TONSILLITIS, AND LARYNGITIS

To the Editor —*I frequently see infants and children having symptoms of croup, tonsillitis, or laryngitis 1 Should antibiotic treatment be withheld until the clinical course and signs are definite enough to rule out diphtheria? Will antibiotics or symptomatic treatment alter clinical course and findings in such a way that diphtheritic etiology is obscured? 2 How dependable are throat swabs that are permitted to dry en route to the state laboratory? 3 If a membranous tonsillar exudate appears in an immunized child, is it advisable to wait to see if it spreads before instituting treatment? If an antibiotic is given when the exudate is first noticed, will the diphtheritic etiology be obscured?* *M D, Iowa*

Answer —In regard to the questions as to the procedure in treatment of infants and children with croup, tonsillitis, and laryngitis, no blanket statement can be given Therapy depends on the clinical judgment of the physician and his examination of the individual patient Answers to the individual questions follow 1 Generally if the patient is ill antibiotic therapy should not be withheld to rule out diphtheria Such therapy will not obscure diphtheria etiology 2 Throat swabs permitted to dry cannot be considered dependable Throat swabs should be put immediately on appropriate culture material and the cultures determined in four to six hours 3 If a membranous tonsillitis appears in an immunized child, antibiotic therapy would be indicated rather than waiting for the membrane to spread In such a case it would be safe to wait several hours for the result of the throat culture before instituting diphtheria antitoxin therapy if there was any doubt Giving an antibiotic should not obscure the diphtheria etiology

HAZARD IN USING X RAY EQUIPMENT IN WARDS

To the Editor —*What is the danger of using x-ray equipment in the wards while an oxygen tent is in use and in an operating room for a hip-nailing procedure while drop ether is being used and while nitrous oxide and oxygen are being used? The portable x-ray machine is 20 years old and is questionably shockproof Would there be danger if a new shockproof machine were used?* *M D, Pennsylvania*

Answer —Although the use of modern shockproof apparatus has considerably diminished the hazard of explosion and fire, it is still there, hence every consideration and precaution must be exercised This applies to use both in the ward while an oxygen tent is in use and in the operating room while ether is being administered and/or nitrous oxide and oxygen are being used Awareness of the danger and proper precaution such as temporarily removing the large supply of anesthesia from the room will greatly minimize the hazard, particularly if the room is adequately ventilated and the air movement is active If the operator is extremely careful, using a liberal quantity of commonsense care and precaution, avoiding foolhardy chance-taking, the hazard becomes minimal with modern shockproof equipment Reference is made to Bulletin 56, National Fire Protection Association, Boston, and "Planning Guide for Radiologic Installations" (Chicago, Year Book Publishers, 1953) for complete details pertinent to this matter

ACCIDENTS WITH ROTARY TYPE LAWN MOWERS

To the Editor —*The answer given to a query in* The Journal, *June 2, 1956, page 485, concerning injuries caused by rotary lawn mowers did not indicate with sufficient force the hazards attending the use of these machines I recall that in the last few years there have been three serious injuries reported in local newspapers In one instance, a child was struck in the precordial region by a piece of wire impelled by the rotating blades with sufficient force to penetrate her heart She died of the injury In another instance, a pair of pliers had been left in the grass, and, when they were struck by the rotating blade of such a mower, a bystander was severely injured In another case, a stone or fragment of glass in the grass produced a head wound in a child Mowers of this sort are capable of inflicting fatal wounds at distances many feet removed from the site of the operation of the tool Users of these mowers ought to learn to clear the entire area of bystanders*

George Ehni, M D
1006 Hermann Professional Bldg
Houston 25, Texas

REMOVAL OF NEVUS

To the Editor —*In reference to the query in* The Journal, *May 26, 1956, page 398, entitled "Removal of Nevus," I should like to make the following comment Nevi can be easily differentiated from malignant melanomas by means of radioactive phosphorus and external counting of the radioactivity with a Geiger-Muller tube (Bauer and Steffen* J A M A *158 563-565 [June 18] 1955) The test should be done before a biopsy specimen is taken, since granulation tissue will give a false-positive test In my experience, I have not encountered a false-negative test*

Franz K Bauer, M D
Chief, Radioisotope Service
Veterans Administration
Los Angeles 25

CIRCUMCISION IN THE FEMALE

To the Editor —*In* The Journal *for Aug 27, 1955, page 1576, was a query regarding circumcision of the female Almost every African woman examined in the prenatal and gynecologic clinics at this mission has had the clitoris and labia minora excised previously Traceable to the scarring that follows this mutilation is a high incidence of obstruction of birth at the outlet, intrauterine fetal death, ruptured uterus, vesicovaginal and rectovaginal fistulas, and perineal lacerations These results condemn this widely practiced custom*

Charles G White, M D
Ganta Methodist Mission
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SUBJECT INDEX

The letters used to explain in which department the matter indexed appears are as follows "E" Editorial "C," Correspondence, "ab abstracts the asterisk (*) indicates an original article in THE JOURNAL.

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Am —American
A —Association
Coll —College
Commn —Commission
Comm —Committee
Conf —Conference
Cong —Congress
Dist —District
Div —Division
Found —Foundation
Hosp —Hospital
Indust —Industrial
Inst —Institute
Internat —International
M —Medical
Med —Medicine
Nat —National
Pharm —Pharmaceutical
Phys —Physicians
Soc —Society
Surg —Surgery
Surgs —Surgeons
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